

# Product Catalogue 2003/2004



*CLASSICsystem, STARsystem, VISIONsystem*  
A modular cabling system for voice, data and  
video applications.

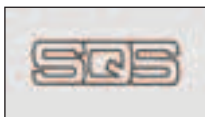


Convincing cabling solutions

In this catalogue we present you, one of the leading, state-of-the-art solutions in structured cabling systems.

We gladly assist you in finding the perfect solution for your network. Why not discover the intelligence, versatility and quality of R&M's product range yourself.

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March 2003



ISO 9001 Quality Standard

Utmost care went into creating this document. The information it contains reflects product specifications at the time of publication. Subsequent editions may contain additions and corrections. Subject to changes in technical specifications without notice.

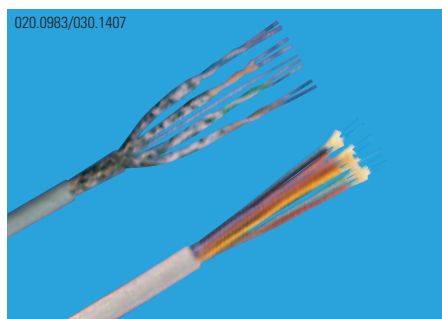
## Ordering information

## Contents

## Page

**Introduction**

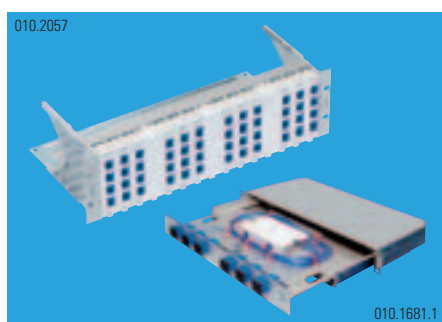
R&M – the Company	6
-------------------	---

**Installation cables**

Overview, copper/FO installation cables	9
Cu multipair installation cables, Cat. 3	10
Cu installation cables, Cat. 5e	11
Cu installation cables, Cat. 6, Cat. 7	14
Introduction, FO installation cables	17
FO indoor cables	20
FO indoor/outdoor cables	21

**RJ45 connection modules, FO adapters, FO field-terminated plugs**

Overview, RJ45 connection modules, Cat. 5e and Cat. 6	25
Specifications, RJ45 connection modules, Cat. 5e and Cat. 6	26
RJ45 shielded and unshielded connection modules, Cat. 5e and Cat. 6	30
Accessories, RJ45 connection modules, Cat. 5e and Cat. 6	34
Overview, FO connectors and adapters	35
FO connectors (ST, SC, MT-RJ) with mechanical crimp	36
FO connectors housings and adapters	38
FO test equipment	41

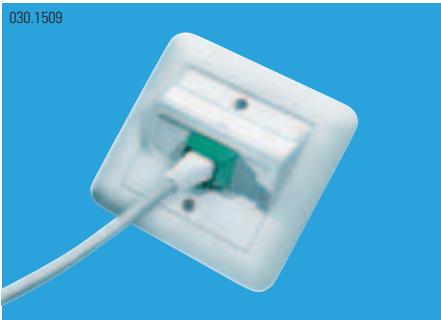
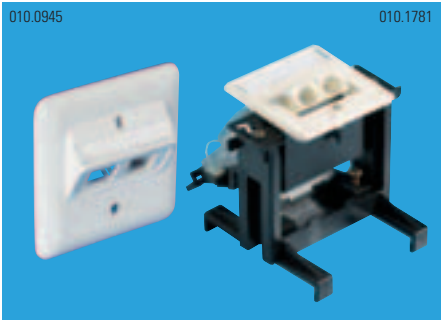
**Patch panels**

Overview, 19" RJ45 patch panels, Cat. 5e and Cat. 6	43
Specifications, 19" 1U patch panels, 16 x RJ45, Cat. 5e and Cat. 6	46
Specifications, 19" 1U patch panels, 24 x RJ45, Cat. 5e and Cat. 6	48
Specifications, 19" 3U global patch panels, Cat. 5e and Cat. 6	50
Overview, FO patch panels	61
FO 19" 1U patch panels	67
FO 19" 3U patch panels, global system	70
FO patching extras and accessories	72

**Voice integration**

Overview, voice integration	79
Introduction, voice integration	80
19" RJ45 voice panels	81
19" RJ45 PABX voice patch panels	83
Overview SRV	88
ISDN RJ45 Connection modules	93
Telephony adaptors	99

Ordering information



Contents

Page

Outlets

Overview, Cu outlets	103
Third-party Cu outlet suppliers	121
Overview, FO outlets	129

Patch cords

Overview, copper/FO patch cords	141
Patch cords, Cat. 5e	142
Patch cords, Cat. 6	142
FO patch cords	149

R&M security system

Overview, R&M security system	151
Introduction, R&M security system	152
Security level 1 products	153
Security level 2 products	154
Security level 3 products	156

R&M environment system

Overview, R&M environment system	159
Splash cap	161
Splash sleeve	161
Splash mounting tool	161
IP specifications	162

Adapters and baluns

Overview, adapters and baluns	165
Adapters and baluns	166



Ordering information

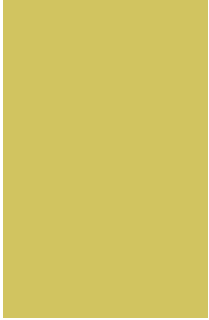
Contents

Page



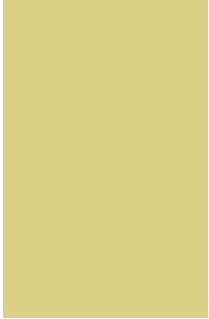
**SOHO (Small Office, Home Office)**

Overview, SOHO	169
Introduction, SOHO	170
maxiCase 48 platform	172
miniCase 24 platform	174
10" 3U global patch panels	176
SOHO accessories	177



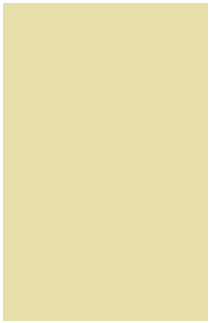
**Marketing services**

Overview, marketing services	179
Demo rack/sample case	180
R&M documentation	181



**Index**

Part number index	183
Alphabetical index	193



# R&M – a decision with a future

Choosing the right passive network structure is one of the most important and far-reaching decisions a network operator will ever have to make. The constantly growing demand for bandwidth, the staggering speed of technological developments, and the call for of maximum availability are important factors when evaluating a system. So finance is not the only factor to be considered in a major network investment: the decision must take account of future requirements and developments.

The cabling solutions from R&M allow you to design your own modular and flexible network. This way you are prepared for the future and ensure long-term protection for your investment. The products' quality plus their simple installation and maintenance lowers operating costs and significantly increases network availability.

In this R&Mfreenet Product Catalogue we present you a high performance cabling system for companies of all sizes and home offices, too. No matter if you prefer state-of-the-art copper networks or fiber optic cabling, R&Mfreenet provides you with your custom-tailored solution for your data, voice and video transmission.

We gladly assist you in finding the perfect solution for your network. Why not discover the intelligence, versatility and quality of R&M's product range yourself.

Position of the three LAN systems			
	CLASSICsystem	STARsystem	VISIONsystem
<b>Cabling structure</b>	Generic cabling system Extended generic cabling system	Generic cabling system Extended generic cabling system	Collapsed backbone Extended backbone
<b>Medium</b>	Horizontal: copper Backbone: fiber optic/copper	Horizontal: copper Backbone: fiber optic/copper	Data: fiber optic Voice: copper
<b>Transmission class</b>	De/E (2 connectors) <sup>2)</sup>	E/F (2 pairs)	OM1, OM2, OM3
<b>Connection modules</b>	Cat. 5e (RJ45) <sup>1)</sup> /E <sup>2)</sup>	Cat. 6 (RJ45) <sup>1)</sup>	Data: optical Voice: Cat. 5e
<b>Patch cords</b>	Cat. 5e (RJ45) <sup>1)</sup> /Cat. 6	Cat. 6/7 (RJ45) <sup>1)</sup>	Data: optical Voice: Cat. 5e
<b>Installation cables</b>	Cat. 5e <sup>1)</sup> /Cat. 6	Cat. 6/7 <sup>1)</sup>	Data: optical Voice: Cat. 3/5/5e
<b>Gigabit Ethernet</b>	Yes	Yes	Yes
<b>10 Gigabit Ethernet</b>	No	No	Yes
<b>Components tested by independent test laboratory</b>	Yes	Yes	–
<b>Channel/link tested by independent test laboratory</b>	Yes	Yes	–
<b>3P certificate</b>	Yes	Yes	–
<b>Warranty</b>	20 years	20 years	20 years
<b>Feature</b>	Optimal cost-benefit ratio	Safe investment in the future as a result of increased bandwidth	Cost advantages as a result of central administration

<sup>1)</sup> shielded or unshielded version

<sup>2)</sup> measured in the channel

# Competent, innovative, customer- oriented



**Reichle & De-Massari AG is an independent family enterprise with 39 years of experience in the information and communication technology market (ICT). We have been successfully concentrating on passive cabling solutions for communication networks (layer 1). Thanks to our copper and fiber optic products of outstanding quality and our commitment to customers and their requirements we have acquired an enviable reputation. Today, R&M sets standards in modularity, quality and ease of installation and maintenance. We have worked our way to the market-leading position in Switzerland and are internationally growing. The company has now subsidiaries in 8 countries and a global network of qualified distributing partners.**

## R&M – the Company

We are committed to innovative solutions and invest nearly 10% of our turnover in research and development every year. With great success! Today, 35% of our turnover is achieved with products less than 3 years old. Remarkable features of R&M are a profound experience and competence in connecting and distributive technology for copper and fiber optic networks. We are supplying convincing cabling solutions to the segments of enterprise and carrier cabling on the basis of these technologies, and in future, by making good use of our know-how, we will offer innovative products in residential and industrial cabling, too.

Yet, despite all the technology, it is always the customer who gets our undivided attention! Flexible products and systems, custom-tailored to requirements, are the key to innovative solutions. They are complemented by a comprehensive services package, including qualified consulting and training, prompt customer support, and state-of-the-art information and communication services. Take advantage of the flexibility of a medium-sized and innovative enterprise; it is one of our key strengths.

### Convincing Cabling Solutions

R&M provides convincing cabling solutions in all four following strategic segments:

#### Enterprise Cabling

This segment comprises cabling solutions for any type of enterprise – from large corporations to small offices. We guarantee highest network availability and maximum bandwidth for voice, data and video transmission in copper and fiber optic transmission systems. The modular concept ensures flexibility for future expansions. The installation can always be upgraded according on requirements, e.g. for boosting the level of security or protection against environmental factors.

#### Carrier Cabling

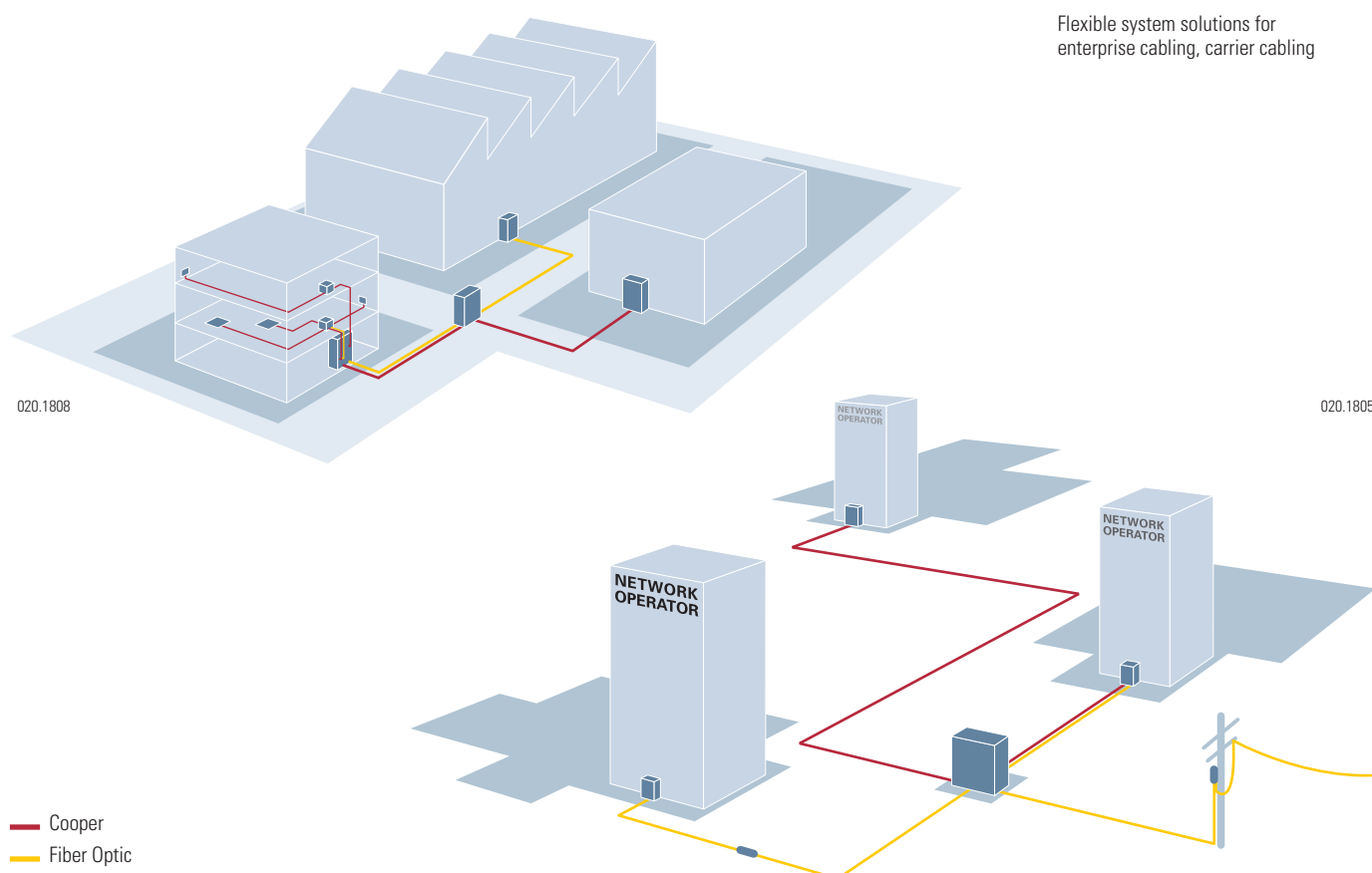
This segment covers international and national telecom companies, the great number of regional network operators as well as city carriers. We provide comprehensive solutions for copper and fiber optic networks as a one-stop supplier. On the basis of individual customer consulting, products and systems are developed into custom-tailored solutions for inside and outside plant applications.

#### Residential Cabling

Here, the future growth market of multimedia networks in private homes is addressed. These cabling solutions combine all the different applications of telephony, data, TV, radio etc. in one universal infrastructure with a distribution centre.

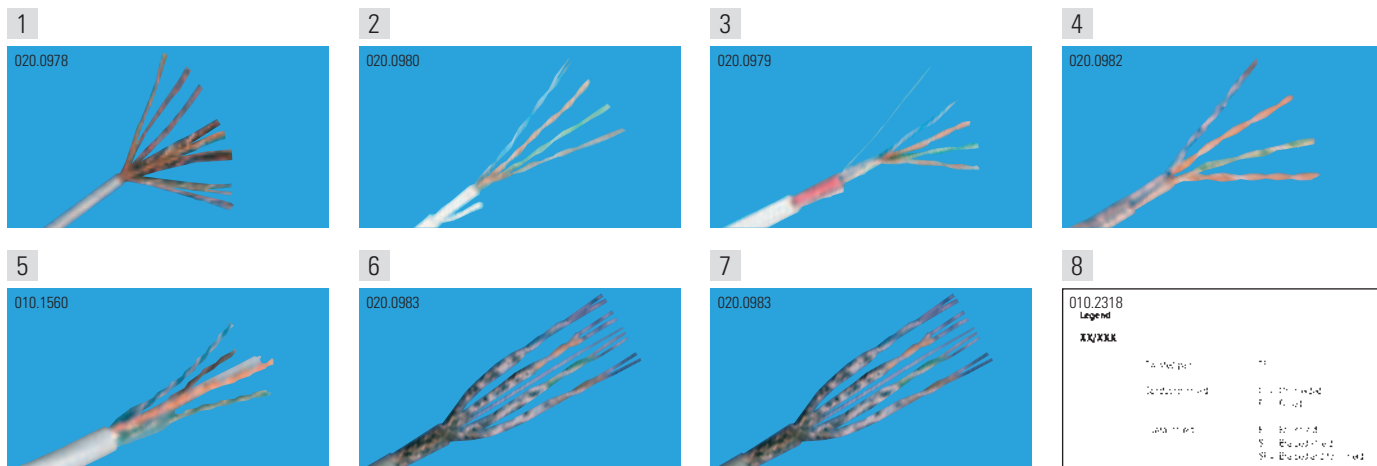
#### Industrial Cabling

Industrial networks place extremely high demands on connector and distributive technology. We therefore developed special solutions such as plug connectors for highest mechanical loads, fully protected from environmental effects, up to IP67.



### Copper Installation Cables

The 100 Ohm copper installation cables from the R&Mfreenet cabling system are suitable for data, video and voice transmission up to 750 MHz. Available are shielded and unshielded cables in PVC/LSOH or LSFROH versions.

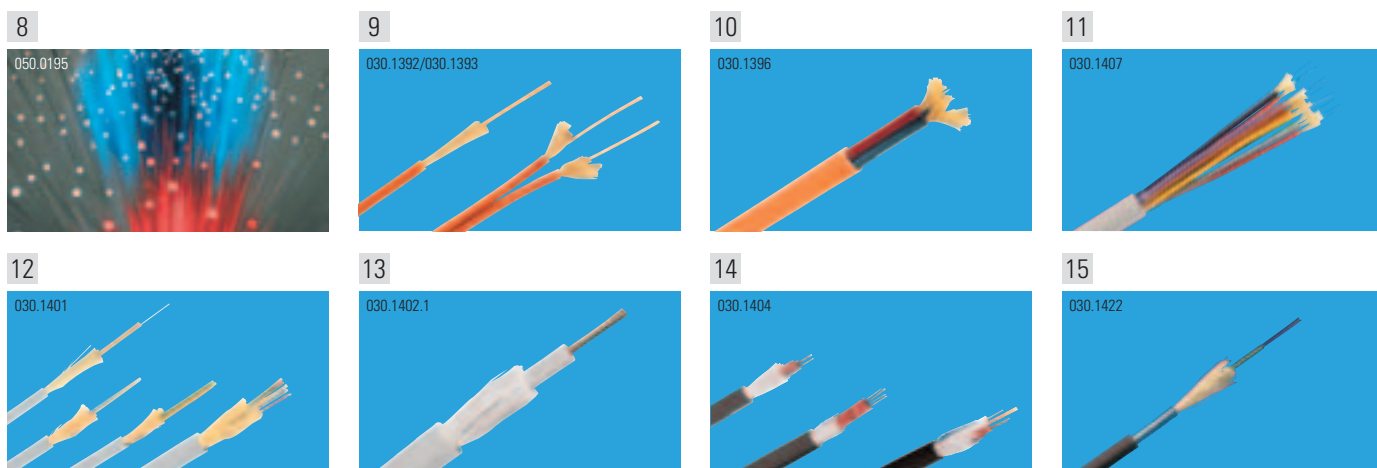


Products	Page
1 Cu Multipair Installation Cables, Cat. 3	10
2 Cu Installation Cables, Cat. 5e, UTP	11
3 Cu Installation Cables, Cat. 5e, FTP	12
4 Cu Installation Cables, Cat. 5e, S-FTP	13

Products	Page
5 Cu Installation Cables, Cat. 6, UTP	14
6 Cu Installation Cables, Cat. 6e, S-STP	15
7 Cu Installation Cables, Cat. 7, S-STP	16
8 New cable designations acc. to ISO/IEC-11801	10


### FO Installation Cables

The fiber optic installation cables from the R&Mfreenet cabling system feature a wide range of FO cables. All cables comply with the latest fiber specifications of international standards, thus ensuring a future-proof installation.



Products	Page
8 Introduction FO Installation Cables	17
9 FO Indoor Cables, Simplex/Duplex, 1 and 2 fiber(s)	20
10 FO Indoor Cables, Drop Cable, 2 fibers	20
11 FO Indoor/Outdoor Cables, Full-Breakout Cable	21

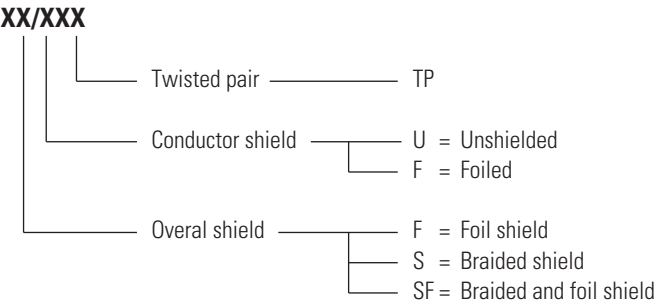
Products	Page
12 FO Indoor/Outdoor Cables, Mini-Breakout Cable	22
13 FO Indoor/Outdoor Cables, Loose Tube, Rodent Protection	23
14 FO Outdoor Cables, Loose Tube, Rodent Protection	24
15 FO Outdoor Cables, Loose Tube, Corrugated Steel Tape	24

Ordering Information	Description	Packing Unit	Part Number
	<b>Multipair Installation Cables, Cat. 3.</b> Multipair, UTP unshielded, Category 3 cables. 100 Ohm impedance. Suitable for voice, video and data transmission at frequencies of up to 16 MHz. Dimensions: pair x 2 x 0.5 mm (AWG 24). PVC or LSOH jacket. Flame-retardant and halogen-free according to IEC 60332-1.		
	<b>UTP, LSOH</b>		
	25 pair	300 m drum	R35073
	50 pair	300 m drum	R35075
	100 pair	300 m drum	R35076
	<b>New:</b>		
	<b>FTP, LSOH</b>		
	25 pair	300 m	R35078
	50 pair	300 m	R35080
	100 pair	300 m	R35081

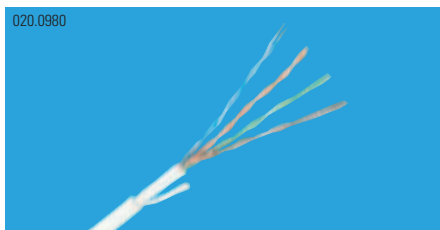
New cable designations acc. to. ISO/IEC-11801 (2002)E

Key	
Old Designation	New Designation
UTP	U/UTP
FTP	F/UTP
S-FTP	S/UTP
S-STP	S/FTP

Legend



**i** Attention!  
This product Catalogue is based on the **old** Designation.  
Detailed cable specifications can be obtained from R&M.



The unshielded 100 Ohm installation cables are suitable for voice, video and data transmission at frequencies of up to 125 MHz.  
Dimensions: 4 x 2 x 0.5 mm (AWG24).  
(3P and Delta certificates available.)



### Cable Construction

Number of pairs	Sheath material	Conductor dimension [mm]	Insulation diameter [mm]	Binder diameter [mm]	Cable diameter [mm]	Weight [kg/km]
4	PVC/LSOH	0.5	0.9 PE	4.1	5.3/5.5	32/33
2 x 4	PVC/LSOH	0.5	0.9 PE	4.1	5.3 x 11.0/5.5 x 11.5	64/66

### Cable Properties

<i>Bending</i>	
Minimum bending radius, installation/installed	8 x D/4 x D
<i>Tensile strength</i>	
Maximum tensile load, installation	100 N
Maximum tensile load, installed	—
<i>Temperature window</i>	
Operation	–20°C to +60 °C
Installation	0°C to +50 °C
<i>Fire classification</i>	
PVC	IEC 60332-1
LSOH	IEC 61034, IEC 60754, IEC 60332-1
<i>Heat release (4 pair)</i>	
PVC	278 MJ/km
LSOH	639 MJ/km

### Electrical Characteristics 20 °C

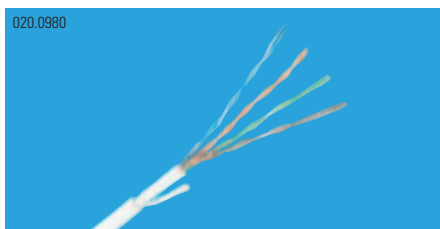
Characteristic impedance (4 MHz < f < 100 MHz)	100 ± 15 Ohm
Mean characteristic impedance @ 100 MHz	100 ± 5 Ohm
DC-loop resistance	170 Ohm/km
Resistance unbalance, maximum	2 %
Propagation delay	800 nsec/km
Skew, maximum (100 MHz)	200 nsec/km
Transfer impedance, IEC 96-1	
1 MHz	—
10 MHz	—
Nominal velocity of propagation (NVP)	0.69 c
Mutual capacitance, nominal	47 pF/m
Capacitance unbalance, maximum	300 pF/km

We reserve the right to alter this specification without notice.

### Electrical Characteristics (typical values at 20 °C)

Frequency [MHz]	Attenuation, nom [dB/100m]	NEXT [dB]	ACR [dB]	Return Loss [dB]	PS NEXT [dB]	PS ACR [dB]	ELFEXT [dB]	PS ELFEXT [dB]
1.0	2.0	75	73	—	72	70	73	70
4.0	3.8	65	61	23.0	62	58	61	58
10.0	6.0	59	53	25.0	56	50	53	50
16.0	7.6	56	48	25.0	53	45	49	46
20.0	8.6	54	45	25.0	51	42	47	44
31.25	10.8	51	40	23.6	48	37	43	40
62.5	15.7	46	30	21.5	43	27	37	34
100.0	20.3	43	23	20.1	40	20	33	30
125.0	22.9	41	18	19.4	38	15	31	28

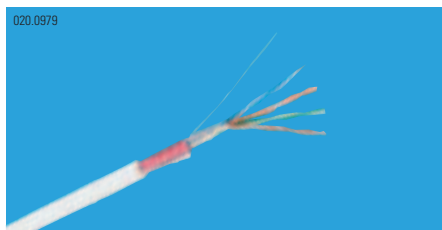
### Ordering Information



Description	Packing Unit	Part Number	
Installation Cable, Cat. 5e, UTP 4P, PVC	500 m drum	R35044	CLASSICsystem
Installation Cable, Cat. 5e, UTP 4P, LSOH	500 m drum	R35045	CLASSICsystem
Siamese Cable, Cat. 5e, UTP 2 x 4P, PVC	500 m drum	R35046	CLASSICsystem
Siamese Cable, Cat. 5e, UTP 2 x 4P, LSOH	500 m drum	R35047	CLASSICsystem
Installation Cable, Cat. 5e, UTP 4P, PVC	305 m box	R35291	CLASSICsystem
Installation Cable, Cat. 5e, UTP 4P, LSOH	305 m box	R35292	CLASSICsystem

## Cu Installation Cables FTP Cat. 5e 125 MHz

020.0979



Foiled 100 Ohm installation cable. Suitable for voice, video and data transmission at frequencies of up to 125 MHz.

Dimensions: 4 x 2 x 0.5 mm (AWG24).

Screen: aluminium foil.

Drain wire: tin-coated copper wire ( $\varnothing$  0.5 mm).  
(3P and Delta certificates available.)



### Cable Construction

Number of pairs	Sheath material	Conductor dimension	Insulation diameter [mm]	Binder diameter [mm]	Cable diameter [mm]	Weight [kg/km]
4	PVC/LSOH/LSFROH	0.5	1.1 PE	4.9	6.0/6.1/6.1	39/38/42
2 x 4	PVC/LSOH/LSFROH	0.5	1.1 PE	4.9	6.0x14.0/6.1x14.0/6.1x14.0	79/76/84

### Cable Properties

<i>Bending</i>	
Minimum bending radius, installation/installed	8 x D/4 x D
<i>Tensile strength</i>	
Maximum tensile load, installation	100 N
Maximum tensile load, installed	—
<i>Temperature window</i>	
Operation	−20 °C to +60 °C
Installation	0 °C to +50 °C
<i>Fire classification</i>	
PVC	IEC 60332-1
LSOH	IEC 61034, IEC 60754, IEC 60332-1
LSFROH	IEC 61034, IEC 60754, IEC 60332-3-24
<i>Heat release (4 pair)</i>	
PVC	430 MJ/km
LSOH	649 MJ/km
LSFROH	391 MJ/km

### Electrical Characteristics 20 °C

Characteristic impedance (4 MHz<f<100 MHz)	100 ± 15 Ohm
Mean Characteristic impedance @100 MHz	100 ± 5 Ohm
DC-loop resistance	170 Ohm/km
Resistance unbalance, maximum	2 %
Propagation delay	800 nsec/km
Skew, maximum (100 MHz)	200 nsec/km
Transfer impedance, IEC 96-1	
1 MHz	44 mOhm/m
10 MHz	42 mOhm/m
Nominal velocity of propagation (NVP)	0.69 c
Mutual capacitance, nominal	52 pF/m
Capacitance unbalance, maximum	300 pF/km

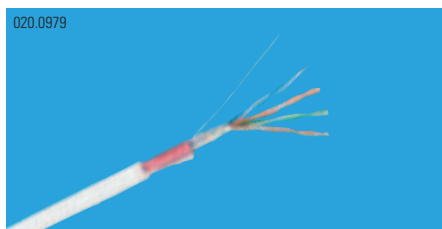
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### Electrical Characteristics (typical values at 20 °C)

Frequency [MHz]	Attenuation, nom [dB/100m]	NEXT [dB]	ACR [dB]	Return Loss [dB]	PS NEXT [dB]	PS ACR [dB]	ELFEXT [dB]	PS ELFEXT [dB]
1.0	2.0	75	73	—	72	70	73	70
4.0	3.8	65	61	23.0	62	58	61	58
10.0	6.0	59	53	25.0	56	50	53	50
16.0	7.6	56	48	25.0	53	45	49	46
20.0	8.6	54	45	25.0	51	42	47	44
31.25	10.8	51	40	23.6	48	37	43	40
62.5	15.7	46	30	21.5	43	27	37	34
100.0	20.3	43	23	20.1	40	20	33	30
125.0	22.9	41	18	19.4	38	15	31	28

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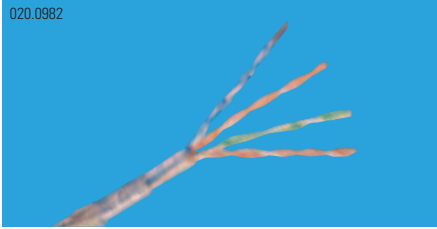
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Description	Packing Unit	Part Number	
Installation Cable, Cat. 5e, FTP 4P, PVC	500 m drum	R35048	CLASSICsystem
Installation Cable, Cat. 5e, FTP 4P, LSOH	500 m drum	R35049	CLASSICsystem
Installation Cable, Cat. 5e, FTP, LSFROH	500 m drum	R302039	CLASSICsystem
Siamese Cable, Cat. 5e, FTP 2 x 4P, PVC	500 m drum	R35050	CLASSICsystem
Siamese Cable, Cat. 5e, FTP 2 x 4P, LSOH	500 m drum	R35051	CLASSICsystem
Installation Cable, Cat. 5e, FTP 4P, PVC	305 m box	R300317	CLASSICsystem
Installation Cable, Cat. 5e, FTP 4P, LSOH	305 m box	R300316	CLASSICsystem



020.0982



Screened/foiled 100 Ohm installation cable.  
Suitable for voice, video and data transmission at frequencies of up to 125 MHz.  
Dimensions: 4 x 2 x 0.5 mm (AWG24).  
Shield: aluminium foil and tin-plated copper braid.  
(3P and Delta certificates available.)



### Cable Construction

Number of pairs	Sheath material	Conductor dimension [mm]	Insulation diameter [mm]	Binder diameter [mm]	Cable diameter [mm]	Weight [kg/km]
4	PVC/LSOH/LSFROH	0.5	1.1 PE	5.4	6.3/6.5/6.5	41/42/46
2 x 4	PVC/LSOH/LSFROH	0.5	1.1 PE	5.4	6.3 x 13.8/6.5 x 14.4/6.5 x 14.4	83/85/92

### Cable Properties

<i>Bending</i>	
Minimum bending radius, installation/installed	8 x D/4 x D
<i>Tensile strength</i>	
Maximum tensile load, installation	100 N
Maximum tensile load, installed	-
<i>Temperature window</i>	
Operation	-20°C to +60°C
Installation	0°C to +50°C
<i>Fire classification</i>	
PVC	IEC 60332-1
LSOH	IEC 61034, IEC 60754, IEC 60332-1
LSFROH	IEC 61034, IEC 60754, IEC 60332-3-24
<i>Heat release (4 pair)</i>	
PVC	435 MJ/km
LSOH	688 MJ/km
LSFROH	427 MJ/km

### Electrical Characteristics 20 °C

Characteristic impedance (4 MHz < f < 100 MHz)	100 ± 15 Ohm
Characteristic impedance (100 MHz < f < 250 MHz)	100 ± 18 Ohm
Mean Characteristic impedance @100 MHz	100 ± 5 Ohm
DC-loop resistance	170 Ohm/km
Resistance unbalance, maximum	2 %
Propagation delay	800 nsec/km
Skew, maximum (100 MHz)	200 nsec/km
Transfer impedance, IEC 96-1	
1 MHz	20 mOhm/m
10 MHz	20 mOhm/m
Nominal velocity of propagation (NVP)	0.69 c
Mutual capacitance, nominal	52 pF/m
Capacitance unbalance, maximum	300 pF/km

We reserve the right to alter this specification without notice.

### Electrical Characteristics (typical values at 20 °C)

Frequency [MHz]	Attenuation, nom [dB/100m]	NEXT [dB]	ACR [dB]	Return Loss [dB]	PS NEXT [dB]	PS ACR [dB]	ELFEXT [dB]	PS ELFEXT [dB]
1.0	2.0	75	73	—	72	70	73	70
4.0	3.8	65	61	23.0	62	58	61	58
10.0	6.0	59	53	25.0	56	50	53	50
16.0	7.6	56	48	25.0	53	45	49	46
20.0	8.6	54	45	25.0	51	42	47	44
31.25	10.8	51	40	23.6	48	37	43	40
62.5	15.7	46	30	21.5	43	27	37	34
100.0	20.3	43	23	20.1	40	20	33	30
125.0	22.9	41	18	19.4	38	15	31	28

### Ordering Information

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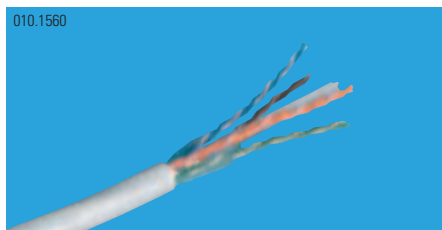


Description	Packing Unit	Part Number	
Installation Cable, Cat. 5e, S-FTP 4P, PVC	500 m drum	R35052	CLASSICsystem
Installation Cable, Cat. 5e, S-FTP 4P, LSOH	500 m drum	R302089	CLASSICsystem
Installation Cable, Cat. 5e, S-FTP 4P, LSFROH	500 m drum	R35053	CLASSICsystem
Siamese Cable, Cat. 5e, S-FTP 2 x 4P, PVC	500 m drum	R35054	CLASSICsystem
Siamese Cable, Cat. 5e, S-FTP 2 x 4P, LSFROH	500 m drum	R35055	CLASSICsystem
Installation Cable, Cat. 5e, S-FTP 4 x 4P, LSOH	500 m drum	R302088	CLASSICsystem

## Cu Installation Cables

### UTP Cat. 6 250 MHz

010.1560



The unshielded 100 Ohm installation cables are suitable for voice, video and data transmission at frequencies of up to 250 MHz.  
Dimensions: 4 x 2 x 0.58 mm (AWG23).  
(3P and Delta certificates available.)



#### Cable Construction

Number of pairs	Sheath material	Conductor dimension [mm]	Insulation diameter [mm]	Binder diameter [mm]	Cable diameter [mm]	Weight [kg/km]
4	PVC/LSOH	0.58	1.04	5.4	6.8/7.1	43/48
2 x 4	Not available	—	—	—	—	—

#### Cable Properties

<i>Bending</i>	
Minimum bending radius, installation/installed	8 x D/4 x D
<i>Tensile strength</i>	
Maximum tensile load, installation	100 N
Maximum tensile load, installed	—
<i>Temperature window</i>	
Operation	−20°C to +60°C
Installation	0°C to +50°C
<i>Fire classification</i>	
PVC	IEC 60332-1
LSOH	IEC 61034, IEC 60754, IEC 60332-1
<i>Heat release (4 pair)</i>	
PVC	412 MJ/km
LSOH	1030 MJ/km

#### Electrical Characteristics 20 °C

Characteristic impedance (4 MHz < f < 100 MHz)	100 ± 15 Ohm
Characteristic impedance (100 MHz < f < 250 MHz)	100 ± 18 Ohm
Mean Characteristic impedance @ 100 MHz	100 ± 5 Ohm
DC-loop resistance	141 Ohm/km
Resistance unbalance, maximum	2 %
Propagation delay	800 nsec/km
Skew, maximum (100 MHz)	200 nsec/km
Transfer impedance, IEC 96-1	
1 MHz	—
10 MHz	—
Nominal velocity of propagation (NVP)	0.67 c
Mutual capacitance, nominal	49 pF/m
Capacitance unbalance, maximum	300 pF/km

We reserve the right to alter this specification without notice.

#### Electrical Characteristics (typical values at 20 °C)

Frequency [MHz]	Attenuation, nom [dB/100m]	NEXT [dB]	ACR [dB]	Return Loss [dB]	PS NEXT [dB]	PS ACR [dB]	ELFEXT [dB]	PS ELFEXT [dB]
1.0	1.9	76	74	—	73	71	69	66
4.0	3.6	67	63	23.0	64	60	57	54
10.0	5.6	61	55	25.0	58	52	49	46
16.0	7.1	59	52	25.0	56	49	45	42
20.0	8.0	57	49	25.0	54	46	44	41
31.25	10.1	55	45	23.6	52	42	40	37
62.5	14.5	52	38	21.5	49	35	35	32
100.0	18.7	51	32	20.1	48	29	31	28
155.0	23.7	51	27	18.8	48	24	28	25
200.0	27.3	50	23	18.0	47	20	27	24
250.0	31.0	50	19	17.3	47	16	25	22

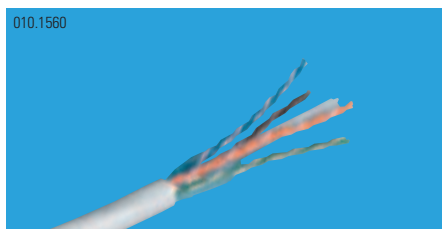
#### Ordering Information

#### Description

#### Packing Unit

#### Part Number

010.1560



Installation Cable, Cat. 6, UTP 4P, PVC

500 m drum

R35056

STARsystem

Installation Cable, Cat. 6, UTP 4P, LSOH

500 m drum

R35057

STARsystem

020.0983



The pair-shielded 100 Ohm installation cables are suitable for voice, video and data transmission at frequencies of up to 250 MHz.  
Dimensions: 4 x 2 x 0.55 mm.  
Screen: aluminium foil and tin-coated copper braid.  
(3P and Delta certificates available.)



### Cable Construction

Number of pairs	Sheath material	Conductor dimension [mm]	Insulation diameter [mm]	Binder diameter [mm]	Cable diameter [mm]	Weight [kg/km]
4	LSOH	0.55	1.35 PE	6.2	7.4	53
2 x 4	Not available	—	—	—	—	—

### Cable Properties

<i>Bending</i>	
Minimum bending radius, installation/installed	8 x D/4 x D
<i>Tensile strength</i>	
Maximum tensile load, installation	100 N
Maximum tensile load, installed	—
<i>Temperature window</i>	
Operation	−20°C to +60°C
Installation	0°C to +50°C
<i>Fire classification</i>	
LSOH	IEC 61034, IEC 60754, IEC 60332-1
<i>Heat release (4 pair)</i>	
LSOH	745 MJ/km

### Electrical Characteristics 20 °C

Characteristic impedance (4 MHz < f < 100 MHz)	100 ± 15 Ohm
Characteristic impedance (100 MHz < f < 250 MHz)	100 ± 18 Ohm
Mean characteristic impedance @100 MHz	100 ± 5 Ohm
DC-loop resistance	145 Ohm/km
Resistance unbalance, maximum	2 %
Propagation delay	800 nsec/km
Skew, maximum (100 MHz)	200 nsec/km
Transfer impedance, IEC 96-1	
1 MHz	10 mOhm/m
10 MHz	10 mOhm/m
Nominal velocity of propagation (NVP)	0.75 c
Mutual capacitance, nominal	44 pF/m
Capacitance unbalance, maximum	1000 pF/km

We reserve the right to alter this specification without notice.

### Electrical Characteristics (typical values at 20 °C)

Frequency [MHz]	Attenuation, nom [dB/100m]	NEXT [dB]	ACR [dB]	Return Loss [dB]	PS NEXT [dB]	PS ACR [dB]	ELFEXT [dB]	PS ELFEXT [dB]
1.0	2.0	90	88	—	87	85	67	64
4.0	3.6	88	84	23.0	85	81	59	56
10.0	5.7	85	79	25.0	82	76	51	48
16.0	7.2	84	77	25.0	81	74	47	44
20.0	8.1	83	75	25.0	80	72	45	42
31.25	10.2	82	72	23.6	79	69	41	38
62.5	14.7	80	85	21.5	77	62	35	32
100.0	18.9	79	60	20.1	76	57	31	28
155.0	24.0	78	54	18.8	75	51	27	24
200.0	27.0	78	51	18.0	75	48	25	22
250	31.4	77	46	17.3	74	43	23	20

### Ordering Information

### Description

### Packing Unit

### Part Number

020.0983



**Installation Cable, Cat. 6e, S-STP 4P, LSOH**

500 m drum

R305649

STARsystem

## Cu Installation Cables Category 7, S-STP

020.0983



Pair-shielded 100 Ohm installation cable. Suitable for voice, video and data transmission at frequencies of up to 750 MHz.  
Dimensions: 4 x 2 x 0.58 mm (AWG23).  
Screen: tin-coated copper braid and aluminium foil.  
(3P and Delta certificates available.)



### Cable Construction

Number of pairs	Sheath material	Colour	Conductor diameter [mm]	Insulation diameter [mm]	Cable diameter [mm]	Weight [kg/km]
4	LSFROH	Grey, RAL 7035	0.58	1.4 PE	7.9	73

### Cable Properties

<i>Bending</i>	
Minimum bending radius, installation	8 x D
Minimum bending radius, installed	4 x D
<i>Tensile Strength</i>	
Maximum tensile load, installation [N]	100
Maximum tensile load, installed	No stretch
<i>Temperature Range</i>	
Operation [°C]	– 20 to + 75
Installation [°C]	0 to + 50
LSFROH	IEC 61034, IEC 60754-1, IEC 60332-3C
<i>Heat Release (Siamese Cable)</i>	
LSFROH [MJ/km]	502 (1010)

### Electrical Characteristics 20 °C

Characteristic impedance (1– 600 MHz) [ $\Omega$ ]	100 $\pm$ 15
DC-loop resistance [ $\Omega$ /km]	132
Resistance unbalanced, max. [%]	2
Optical braid coverage [%]	65
Transfer impedance, IEC 96-1	
1 MHz [m $\Omega$ /m]	1.2
10 MHz [m $\Omega$ /m]	1.1
Nominal velocity of propagation (NVP) [c]	0.75
Mutual capacitance, nominal [pF/m]	46
Capacitance unbalanced, max. [pF/m]	1000

We reserve the right to alter this specification without notice.

### Electrical Characteristics (typical values at 20 °C)

Frequency [MHz]	Attenuation [dB/100 m]	NEXT [dB]	ACR [dB]	Return Loss [dB]	PS NEXT* [dB]	PS ACR [dB]	PS ELFEXT* [dB]
1.0	1.9	95.0	93.1	–	92.0	90.1	84.1
10.0	5.5	95.0	89.5	23.0	92.0	86.5	80.5
20.0	8.4	95.0	86.6	25.0	92.0	83.6	77.6
31.25	10.4	94.0	83.6	25.0	91.0	80.6	75.6
62.5	14.4	94.0	79.6	23.6	91.0	76.6	69.6
100.0	18.0	92.0	74.0	21.5	89.0	71.0	65.0
300.0	32.1	90.0	57.9	18.0	87.0	54.9	45.9
600.0	46.9	82.0	35.1	17.3	79.0	32.1	25.1

\* PS  $\hat{=}$  Power Sum

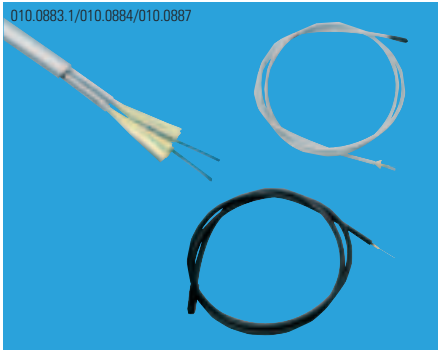
\* ELFEXT  $\hat{=}$  Power Sum Equal Level Far End Crosstalk

### Ordering Information

020.0983



Description	Packing Unit	Part Number
Installation Cable, Cat. 7, S-STP 4P, LSFROH	500 m drum	R35060 
Siamese Cable, Cat. 7, S-STP 2 x 4P, LSFROH	500 m drum	R35061 



The VISIONsystem FO cabling system comprises a large selection of fiber optic installation cables.

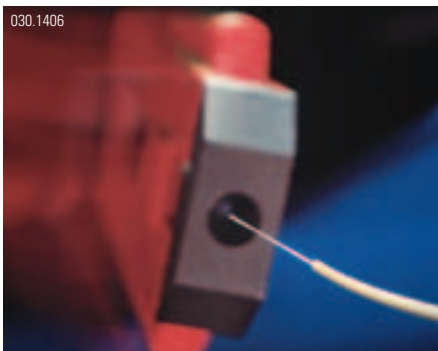
Fiber optic cables of the VISIONsystem cabling system can be used for data, voice and video transmission, as well as for all presently known and planned protocols.

Depending on the application and installation, FO Simplex/Duplex cables, FO mini and full-breakout and various types of bundled loose tube cable are available. Campus cabling can be achieved with outdoor or indoor/outdoor cable (loose tube cable). For building backbone applications the indoor/outdoor cable (Mini-Breakout) is advantageous as it permits fast and easy field-termination of ST, SC or MT-RJ connectors. Moreover, SC-RJ, LSH and other connectors can be spliced on as pigtails.

Single-fiber drop cables are for example used for horizontal cabling where they provide a simple "Fiber to the desk" or "Fiber to the office" solution with connectors that can be field-terminated. This is where the new "Easy-Strip+" semi-tight buffer are used.

#### **Features**

- Appropriate cable designs are available for all the various cabling environments and customer requirements.
- Various fiber types are available.
- All fiber types are Gigabit Ethernet compatible.
- 1 GBit, 10 GBit Ethernet OM1, OM2, OM3, OS1.
- Pure indoor cables or combined indoor and outdoor cables are made from flame-retardant LSZH (low smoke zero halogen or ULSZH. See insights on page 19).



#### **"Easy-Strip+" semi-tight buffer**

Save costs and gain system security when installing connectors.

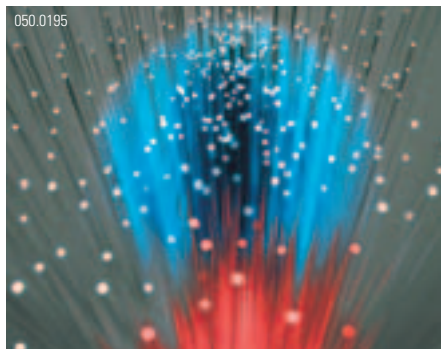
#### **Features**

- Flame-retardant.
- LSZH cable jackets (low smoke zero halogen).
- The semi-tight buffer can be stripped up to 300 mm in one step.
- No micro bending.
- Dry, gel-free construction, diameter 900 µm.
- Easy to splice and terminate in the field thanks to a new semi-tight buffer design.

**i** Other cable jacket materials, designs, fiber types, numbers and grades are available on request.  
All cables carry the R&Mfreenet label.

## Fiber Optics (FO)

### Fiber Specifications



The VISIONsystem cabling system comprises a large range of fiber optic cables. They comply with the latest specifications of international standards thus ensuring future-proof installations.

#### Features

- All fibers are Gigabit and 10 Gigabit Ethernet compatible.
- Multimode (50/125 and 62.5/125  $\mu\text{m}$ ) and singlemode FO.
- Standards EN 50173-X ISO/IEC 11801.

#### Technical Data of the Fibers

In acc. with standard	ISO/IEC 11801	OM1	OM2	On request	
				OM3	OS1
Fibers	[ $\mu\text{m}$ ]	G62.5/125	G50/125	G50/125	E9/125
Core $\varnothing$	[ $\mu\text{m}$ ]	62.5 $\pm$ 3	50 $\pm$ 3	50 $\pm$ 2.5	8.3 typical
Cladding $\varnothing$ [ $\mu\text{m}$ ]	[ $\mu\text{m}$ ]	125 $\pm$ 2	125 $\pm$ 2	125 $\pm$ 2	125 $\pm$ 1
Primary coating $\varnothing$	[ $\mu\text{m}$ ]	250 $\pm$ 15	250 $\pm$ 15	250 $\pm$ 10	250 $\pm$ 15
Effective refraction index	(850 nm)	1.482	1.496	1.482	–
	(1300 nm)	1.477	1.491	1.477	–
	(1310 nm)	–	–	–	1.4675
	(1550 nm)	–	–	–	1.4681
Attenuation (cable)	[dB/km] (850 nm)	3.50	3.50	3.50	–
	[dB/km] (1300 nm)	1.00	1.00	1.00	–
	[dB/km] (1310 nm)	–	–	–	0.45
	[dB/km] (1550 nm)	–	–	–	0.40
Bandwidth x length product	[MHz x km] (850 nm)	$\geq$ 200	$\geq$ 500	$\geq$ 1500/2000*	–
	[MHz x km] (1300 nm)	$\geq$ 600	$\geq$ 500	$\geq$ 500	–
Chromatic dispersion	[ps/(km x nm)] (1310 nm)	–	–	–	3.50
	[ps/(km x nm)] (1550 nm)	–	–	–	18

\* Restricted launch condition

#### Colour code used for FO fibers

red	green	yellow	blue	white	violet	orange	black	grey	brown	pink	turquoise
red/ 1 ring	green/ 1 ring	yellow/ 1 ring	blue/ 1 ring	white/ 1 ring	violet/ 1 ring	orange/ 1 ring	nature/ 1 ring	grey/ 1 ring	brown/ 1 ring	pink/ 1 ring	turquoise/ 1 ring

## Insights

### Reference data

	LSZH	ULSZH	PE
Tensile strength	+++	+++	++++
Flexibility	+++	+++	++
Humidity protection	+	++++	++++
UV resistance	+++	+++	++++
Abrasion resistance	++	++	++++
Fire propagation	IEC 60332-1	IEC 60332-1	
	IEC 60332-3	IEC 60332-3	
Smoke emission	IEC 601034	IEC 601034	
Acid gas emission	IEC 60754-1	IEC 60754-1	
Toxicity	NES 713	NES 713	

The above information is of a general nature. For further information please contact the R&M Sales Department.

### Explanation concerning the non-flammability of the cables

Summary of flame resistance characteristics of R&M cables with outer jackets made of LSZH or ULSZH.

#### 1.0 Scope

Cables installed in buildings are a potential source of hazard in case of a fire. In those cases where the cable sheath is not rated "Flame-retardant", "Low smoke emission" or "Halogen -free", the data cable itself can represent a fire hazard. The following section explains why R&M cables with LSZH and ULSZH jackets do not represent a fire hazard and do not contribute to the spreading of a fire.

#### 2.0 Non-flammability

Jackets of data cables should be "Flame-retardant".

A cable is flame-retardant if a fire cannot spread along the cable and if the cable is self-quenching. During a fire, a flame-retardant cable does not contribute to the spreading of the fire, and does not produce any melting and dripping materials. R&M LSZH (Low Smoke Zero Halogen) buffer and jacket materials and ULSZH (Universal Low Smoke Zero Halogen) indoor/outdoor jacket materials meet the requirements of IEC 60332, Part 1 (single cables) and IEC 60332, Part 3 (bundled cables). In these tests, cables are tied to a ladder and exposed to the flame of a propane gas burner, as defined in the standard.

LSZH/ULSZH jacket materials of R&M cables also comply with the following national and international fire protection standards:

BS 4066, Part 3      CEI 20-22  
IEEE 383              FT4  
VDE 804c              AS 1660.5.1

#### 3.0 Low smoke emission

A data cable exposed to a fire should not produce any intensive smoke. In buildings, smoke reduces visibility and causes a danger of suffocation, making it more difficult for people to escape the fire.

R&M LSZH (Low Smoke Zero Halogen) buffer and jacket materials and ULSZH (Universal Low Smoke Zero Halogen) indoor/outdoor jacket materials meet the requirements of IEC 601034 "Smoke emission test". This test is also known as the 3m (27 m³) cube smoke test in which cable bundles are placed above a dish containing burning alcohol. During the test, the ambient air is monitored by an electro-optic instrument. The instrument determines the reduced light intensity of a light source, as a result of smoke. The absorption value, which must not exceed specific limits, is calculated, based on the optical readings and other test parameters.

LSZH/ULSZH jacket materials used by R&M also comply with the following national and international smoke emission standards:

ASTM E662              AS 1660.5.2  
BS 6724: 1990          UITP E4  
CEI 20-37. Part 3,  
Method 4

#### 4.0 Zero halogen and other emissions

It is very important that during a fire, data cables do not develop any toxic or corrosive gases. Such gases may not only cause fatalities but also destroy plant and equipment.

It must be borne in mind that these gases may be both colourless and free of any odours. The issue is thus clearly different from that of smoke development. To eliminate this problem, only halogen-free jacket materials are used. Materials containing halogen contain hazardous gaseous substances such as e.g. mustard gas, which is present in PVS, or acid, which is present in plenum materials.

Emission quantities of hazardous or corrosive substances are classified according to the "Toxicity" and "Acid gas" tests.

R&M LSZH/ULSZH materials meet the requirements of IEC 60754, Part 1. This is a test using wet chemicals, with the amount of halogen acid gas being determined by chemical titration. The LSZH/ULSZH materials used by R&M also comply with the following national and international acid gas emission standards:

BS 6425, Part 1: 1990      AS 1660.5.4  
MIL C24643                  CEI 20-37, Part 1  
VDE 0472: Part 813

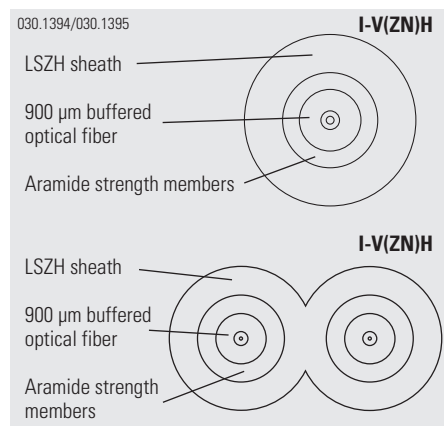
R&M LSZH/ULSZH materials comply with the marine engineering standards NES 713, "Toxicity", as well as with the national standard CEI 20-37, Part 2, "Toxicity".

## FO Indoor Cable Simplex / Duplex I-V(ZN)H

The Simplex/Duplex "Easy-Strip+" semi-tight buffer cable forms part of a range of cables used as connecting cables, patch cables or for connections within buildings.

### Features

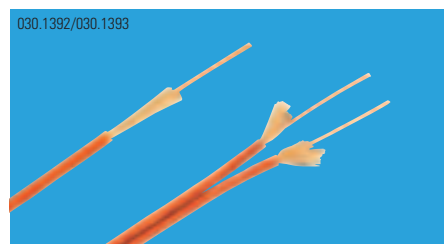
- Direct connection.
- Compact stable construction.
- Flame-retardant halogen-free LSZH sheath (Low Smoke Zero Halogen).
- 900 µm "Easy-Strip+" semi-tight buffer.



### Technical Data of the Simplex and Duplex Cables

Cable Ø (mm)	2.8	2.8 x 5.6
Nominal weight (kg/km)	8	17
Tensile strength (N)	150	300
Crush resistance (N/10 cm)	1000	2000
Minimum bending radius during installation (mm)	30	30
Temperature range (°C)	– 20 to + 70	– 20 to + 70

### Ordering Information



### Description

### Packing Unit

### Part Number

**Simplex cable, 1 fiber, 50/125 µm (OM2)**

2000 m

R304066

VISIONsystem

**Simplex cable, 1 fiber, 50/125 µm (OM1)**

2000 m

R304067

VISIONsystem

**Duplex cable, 2 fibers, 50/125 µm (OM2)**

2000 m

R304068

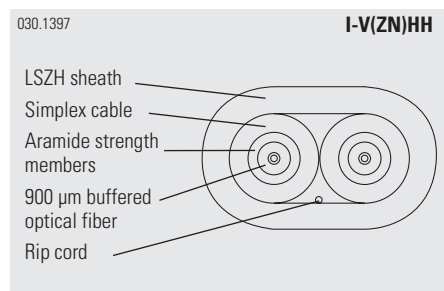
VISIONsystem

**Duplex cable, 2 fibers, 50/125 µm (OM1)**

2000 m

R304069

VISIONsystem



### Technical data of the drop cable

Cable Ø (mm)	4.5 x 7.5
Nominal weight (kg/km)	39
Tensile strength (N)	300
Crush resistance (N)	2500
Minimum bending radius during installation (mm)	70
Temperature range (°C)	– 20 to + 70

### Ordering Information



### Description

### Packing Unit

### Part Number

**Drop cable, 2 fibers, 50/125 µm (OM2)**

2000 m

R304070

VISIONsystem

**Drop cable, 2 fibers, 50/125 µm (OM1)**

2000 m

R304071

VISIONsystem

– With two differently coloured 2.8 mm Simplex cables.



Single mode fiber optics (OS1) and OM3 on request.  
If cables are in stock, shorter lengths can be supplied.  
Please ask for our stock list.



The Full-Breakout cable can be used in the backbone and horizontal areas of Generic Cabling Systems. Connectors can be assembled directly to the Simplex element of the cable.

#### Features

- “Easy-Strip+” semi-tight buffer.
- Indoor /outdoor cable.
- Differently coloured Simplex elements for safe distinction.
- “Fiber to the desk”.
- Various diameters available.
- Flame-retardant halogen-free ULSZH jacket (Universal Low Smoke Zero Halogen).

#### Technical Data of the Full-Breakout Cable

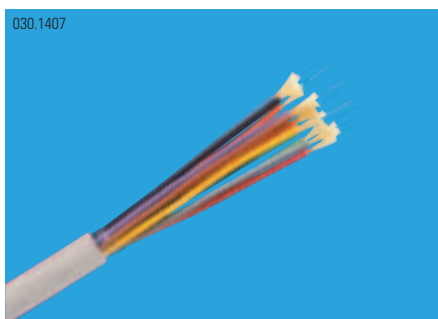
Number of fibers	4	6	8	12	16
Cable Ø (mm)	9.0	10.6	12.0	13.6	15.8
Nominal weight (kg/km)	81	114	150	172	245
Tensile strength (N)	1000	1500	1980	2640	4180
Crush resistance (N)	2000	2000	2000	2000	2000
Min. bending radius					
during installation (mm)	100	120	150	150	180
Temperature range (°C)	– 20 / + 70	– 20 / + 70	– 20 / + 70	– 20 / + 70	– 20 / + 70

#### Ordering Information

#### Description

#### Packing Unit

#### Part Number



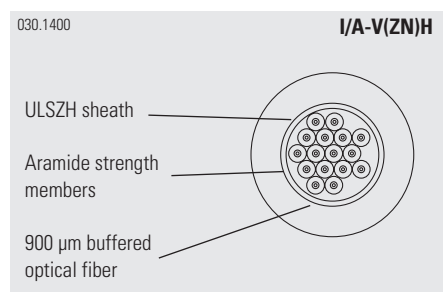
#### Full-Breakout cable

Number of fibers	Ø (mm)	Fiber type [µm]	Packing Unit	Part Number	
4	9.0	50/125 (OM2)	2000 m	R304195	VISIONsystem
4	9.0	62.5/125 (OM1)	2000 m	R304200	VISIONsystem
6	10.6	50/125 (OM2)	2000 m	R304196	VISIONsystem
6	10.6	62.5/125 (OM1)	2000 m	R304201	VISIONsystem
8	12.0	50/125 (OM2)	2000 m	R304197	VISIONsystem
8	12.0	62.5/125 (OM1)	2000 m	R304202	VISIONsystem
12	13.6	50/125 (OM2)	2000 m	R304198	VISIONsystem
12	13.6	62.5/125 (OM1)	2000 m	R304203	VISIONsystem
16	15.8	50/125 (OM2)	2000 m	R304199	VISIONsystem
16	15.8	62.5/125 (OM1)	2000 m	R304204	VISIONsystem

**i** Single mode fiber optics (OS1) and OM3 available on request.  
 If cables are in stock, shorter lengths can be supplied.  
 Please ask for our stock list.

## FO Indoor / Outdoor Cables

### Mini-Breakout Cable I/A-V(ZN)H



The "Fiber to the desk" solution for direct connector mounting. The cable is easy to install and provides a cost-effective solution in confined spaces. The Mini-Breakout cable comes standard with an ULSZH sheath.

#### Features

- 900 µm "Easy-Strip+" semi-tight buffer.
- Indoor/outdoor cable.
- Differently coloured semi-tight buffer elements for safe distinction.
- "Fiber to the desk".
- Lightweight, easily installed.
- Various diameters available.
- Flame-retardant halogen-free ULSZH jacket (Universal Low Smoke Zero Halogen).

#### Technical Data of the Mini-Breakout Cable

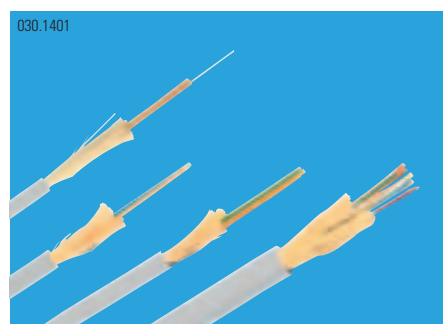
Number of fibers	2	4	2	4	6	8	12	16	24	48
Cable Ø (mm)	3.4	3.4	4.7	4.7	6.0	6.0	7.5	9.0	14.0	17.0
Nominal weight (kg/km)	8	8	16	16	29	29	46	73	164	175
Tensile strength(N)	220	220	500	500	1000	1000	1000	1000	1500	2600
Crush resistance (N)	1000	1000	2000	2000	2000	2000	2000	2000	2000	2000
Min. bending radius during Installation (mm)	50	50	70	70	90	90	100	100	150	150
Temperature range (°C)	-20 /+70	-20 /+70	-20 /+70	-20 /+70	-20 /+70	-20 /+70	-20 /+70	-20 /+70	-20 /+70	-20 /+70

#### Ordering Information

#### Description

#### Packing Unit

#### Part Number



#### Mini-Breakout cable

Number of fibers	Ø (mm)	Fiber type [µm]		
2	3.4	50/125 (OM2)	2000 m	R304189
2	3.4	62.5/125 (OM1)	2000 m	R304190
4	3.4	50/125 (OM2)	2000 m	R304192
4	3.4	62.5/125 (OM1)	2000 m	R304193
2	4.7	50/125 (OM2)	2000 m	R304072
2	4.7	62.5/125 (OM1)	2000 m	R304080
4	4.7	50/125 (OM2)	2000 m	R304073
4	4.7	62.5/125 (OM1)	2000 m	R304081
6	6.0	50/125 (OM2)	2000 m	R304074
6	6.0	62.5/125 (OM1)	2000 m	R304082
8	6.0	50/125 (OM2)	2000 m	R304075
8	6.0	62.5/125 (OM1)	2000 m	R304083
12	7.5	50/125 (OM2)	2000 m	R304076
12	7.5	62.5/125 (OM1)	2000 m	R304084
16	9.0	50/125 (OM2)	2000 m	R304077
16	9.0	62.5/125 (OM1)	2000 m	R304085
24	14.0	50/125 (OM2)	2000 m	R304078
24	14.0	62.5/125 (OM1)	2000 m	R304086
48	17.0	50/125 (OM2)	2000 m	R304079
48	17.0	62.5/125 (OM1)	2000 m	R304087



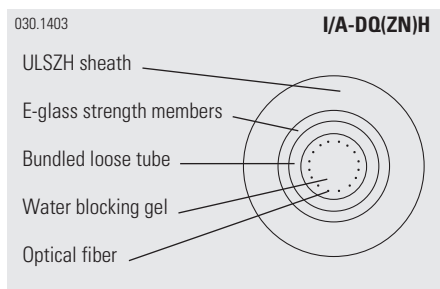
Single mode fiber optics (OS1) and OM3 available on request.  
If cables are in stock, shorter lengths can be supplied.  
Please ask for our stock list.

The cable comprises a loose tube 2.8 mm in diameter (for max. 12 fibers) and a loose tube of 4.0 mm in diameter (for max. 24 fibers).

All individually colour-coded primary-coated 250 µm fibers are contained in a central loose tube with gel filling. The tension elements are made of E-glass strength members twisted around the loose tube. The cable sheath consists of ULSZH (indoor and outdoor cable). The cable is rodent-resistant.

#### Features

- Metal-free. Lightweight. Simple installation.
- Central loose tube, diameter 2.8 mm or 4.0 mm.
- Easy strip back and handling of fibers for termination.
- Gel-filled bundled loose tube.
- Flame-retardant halogen-free ULSZH jacket (Universal Low Smoke Zero Halogen).
- Rodent-resistant.
- Water-proof.



#### Technical Data of the Loose Tube Cable

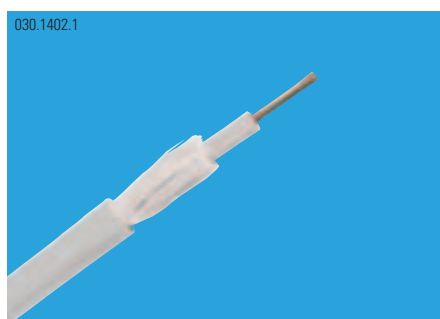
Number of fibers	2 – 12	24
Cable Ø (mm)	6	10
Nominal weight (kg/km)	32	103
Tensile strength (N)	1000	1800
Crush resistance (N)	1000	2000
Min. bending radius during installation (mm)	100	100
Temperature range (°C)	– 40 / + 60	– 40 / + 60

#### Ordering Information

#### Description

#### Packing Unit

#### Part Number

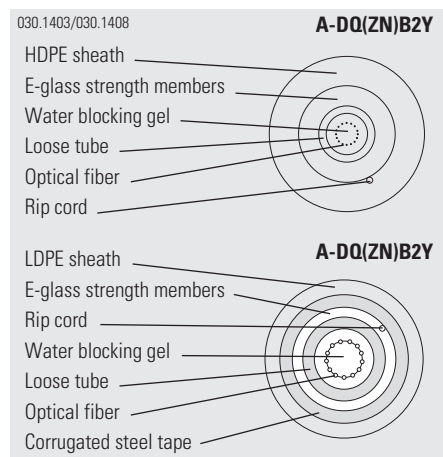


#### Loose tube cable, rodent-resistant

Number of fibers	Ø (mm)	Fiber type [µm]	Packing Unit	Part Number	
4	6	50/125 (OM2)	2000 m	R304088	VISIONsystem
4	6	62.5/125 (OM1)	2000 m	R304093	VISIONsystem
6	6	50/125 (OM2)	2000 m	R304089	VISIONsystem
6	6	62.5/125 (OM1)	2000 m	R304094	VISIONsystem
8	6	50/125 (OM2)	2000 m	R304090	VISIONsystem
8	6	62.5/125 (OM1)	2000 m	R304095	VISIONsystem
12	6	50/125 (OM2)	2000 m	R304091	VISIONsystem
12	6	62.5/125 (OM1)	2000 m	R304096	VISIONsystem
24	10	50/125 (OM2)	2000 m	R304092	VISIONsystem
24	10	62.5/125 (OM1)	2000 m	R304097	VISIONsystem

**i** Single mode fiber optics (OS1) and OM3 available on request.  
 If cables are in stock, shorter lengths can be supplied.  
 Please ask for our stock list.

## FO Outdoor Cables, rodent-resistant Loose Tube Cable A-DQ(ZN)B2Y



A product range of indoor and outdoor cables for installation in raceways where protection against rodents is required. Cables feature either one central or three stranded loose tubes. They are gel-filled, with 12, 24 or 48 differently coloured single mode or multi mode fibers.

Glass braiding which resists longitudinal water incursion, and non-metal rodent protection yarns are incorporated between the tubes and the HDPE outer sheath. Optionally, protection can be provided by a plastic-coated corrugated steel tape between the E-glass strength members and the outer LDPE sheath.

### Features

- Rodent protection.
- Gel-filled loose tubes.
- Humidity barrier.
- HDPE sheath.
- Optional with corrugated steel tape and LDPE sheaths.

### Technical Data of Bundled Loose Tube Cables, rodent-resistant with optional corrugated steel tape

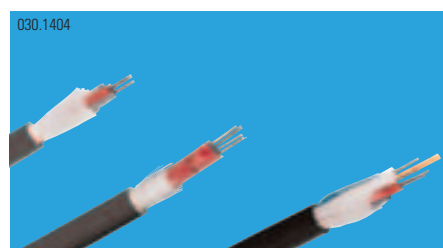
Steel armouring	No	No	No	Yes	Yes
Rodent protection	Yes	Yes	Yes	Yes	Yes
Number of fibers	12	24	48	12 – 24	25 – 72
Cable Ø (mm)	8.4	9.2	11.8	9.6	13.5
Nominal weight (kg/km)	58	68	101	104	181
Tensile strength (N)	2400	2400	2500	1800	5000
Crush resistance (N)	2000	2000	2000	2000	3000
Min. bending radius during installation (mm)	100	100	100	154	190
Temperature range (°C)	– 40 / + 60	– 40 / + 60	– 40 / + 60	– 20 / + 60	– 40 / + 60
Number of loose tubes	1	1	4	1	3 – 6

### Ordering Information

### Description

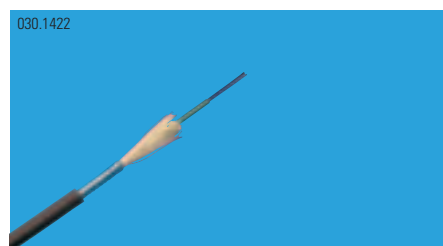
### Packing Unit

### Part Number



#### Loose tube cable, rodent-resistant

Number of fibers	Ø (mm)	Fiber type [µm]	Packing Unit	Part Number	VISIONsystem
12	8.4	50/125 (OM2)	2000 m	R304150	
12	8.4	62.5/125 (OM1)	2000 m	R304153	
24	9.2	50/125 (OM2)	2000 m	R304151	
24	9.2	62.5/125 (OM1)	2000 m	R304154	
48	11.8	50/125 (OM2)	2000 m	R304152	
48	11.8	62.5/125 (OM1)	2000 m	R304155	

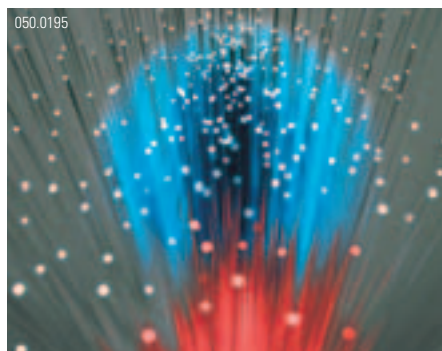


#### Loose tube cable, corrugated steel tape

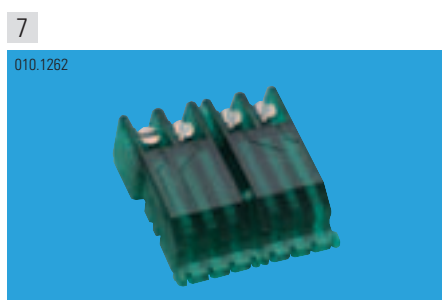
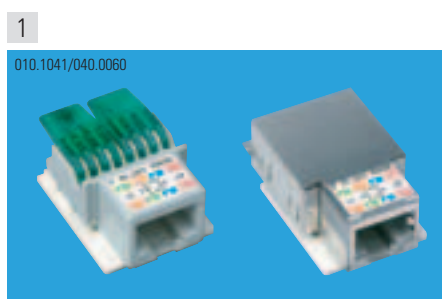
Number of fibers	Ø (mm)	Fiber type [µm]	Packing Unit	Part Number	VISIONsystem
12	9.6	50/125 (OM2)	2000 m	R304210	
12	9.6	62.5/125 (OM1)	2000 m	R304213	
24	9.6	50/125 (OM2)	2000 m	R304211	
24	9.6	62.5/125 (OM1)	2000 m	R304214	
48	13.5	50/125 (OM2)	2000 m	R304212	
48	13.5	62.5/125 (OM1)	2000 m	R304215	



Single mode fiber optics (OS1) and OM3 available on request.  
If cables are in stock, shorter lengths can be supplied.  
Please ask for our stock list.



For FO connectors and adaptors, please refer to page 35.



Products	Page
1 Specifications RJ45 Connection Modules, Cat. 5e	26
2 Specifications RJ45 Connection Modules, Cat. 6	28
3 RJ45 Connection Modules, shielded, Cat. 5e and Cat. 6	30
4 RJ45 Connection Modules, unshielded, Cat. 5e and Cat. 6	31
5 RJ45 Snap-In Connection Modules, Cat. 5e and Cat. 6	32
6 RJ45 Special Connection Modules, Cat. 5e and Cat. 6	33
7 Accessories RJ45 Connection Modules, Cat. 5e and Cat. 6	34

RJ45 Connection Modules, Cat. 5e  
Specifications



R&M's Cat.5e connection modules from the R&Mfreenet cabling system are ideal for voice as well as data transmissions. They are suitable for transmission frequencies of up to 100 MHz.

Cat. 5e Features

- All Cat. 5e requirements of the relevant cabling standards (ISO/IEC 11801, EN 50173 and TIA/EIA 568B) are fulfilled.
- Cat. 5e values as laid down in the component standards IEC 60603–7 combined with R&M Cat. 5e patch cables from the R&Mfreenet cabling system are achieved.
- NEXT values at 100 MHz are by 3dB better than Cat. 5.
- Gold-plating in contacting area.
- Compatible with Cat. 5e standard plugs.
- Fit into all R&Mfreenet patch panels and outlets.
- Tool-free connection technique for installation cables of AWG 22-24.
- Wiring option acc. to TIA/EIA 568B without crossover of pairs.
- Adhesive labels with colour wiring chart and integral production date.
- 360° shield coverage with shielded modules.
- Simple and time-saving, patented shield contacting with integral cable strain relief.
- Lead-free shield coating.
- Halogen-free materials.
- SGS, C-UL-US certified.



Standards

IEC 60603-7: Electrical Characteristics of the Telecommunications Outlets  
ISO/IEC 11801 Second edition: September 2002  
EN 50173-1: October 2002

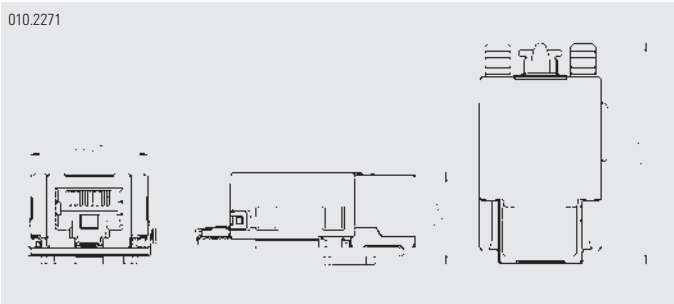
Mechanical Data

Number of RJ45 jacks	1
Contact material	CuSn
Contact surface	> 0.7 µm gold over > 1.2 µm nickel
Jack insulation material	Polycarbonate (UL-94-V0)
Number of IDC* connections	8/jack
IDC contact material	CuSn, tin-plated > 5 µm
IDC insulation material	Polycarbonate (UL-94-V0)
Admissible wire Ø	0.5 mm (AWG24) – 0.65 mm (AWG22)
Admissible insulation Ø	0.8 mm – 1.6 mm

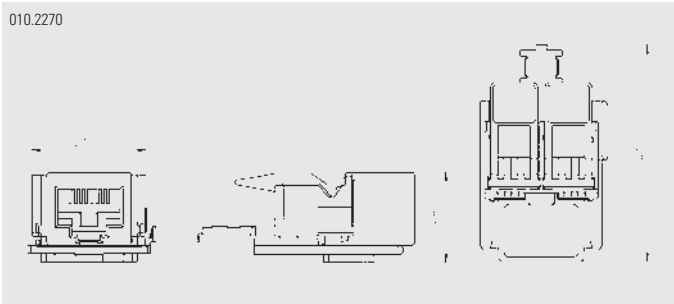
Wire strain relief	Through labyrinth in IDC block
Cable strain relief	Through cable ties
Shield contacting on plug	Through contact springs (on plugs)
Shield contacting on installation cable	Large surface with shield lance (on cable)
Earth contacting	2 contact fingers for flat plug 4.8 x 0.5 mm
Shield material	CuSn, tin-plated 2–4 µm

Description	Standard value	Relevant standard	Typical value (20 °C)
Mating cycles min.	> 750	ISO/IEC 11801 2 <sup>nd</sup> Ed.	> 1000
Insertion cycles installation cables	> 20	ISO/IEC 11801 2 <sup>nd</sup> Ed.	> 20

Dimensions shielded



Dimensions unshielded

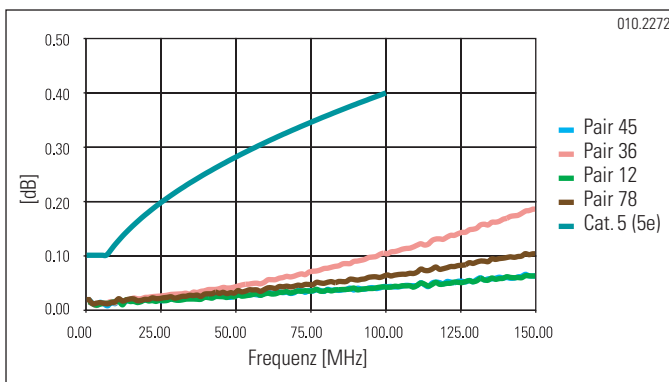


\* IDC = Insulation Displacement Contact.

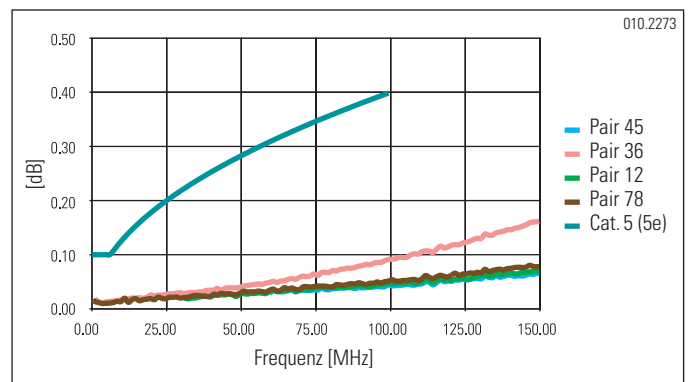
### Electrical Data

Electric strength	Standard value	Relevant standard	Typical value (at 20 °C)
Insulation resistance	1000 V DC or AC peak	IEC 60603-7	> 1000 V <sub>eff</sub>
Isolationswiderstand	> 500 M $\Omega$ (500 V DC)	IEC 60603-7	> 500 M $\Omega$ (500 V DC)
Contact resistance	< 300 m $\Omega$	IEC 60603-7	< 100 m $\Omega$
Transfer impedance	prEN 50173		
1 MHz	< 100 m $\Omega$		< 20 m $\Omega$
10 MHz	< 200 m $\Omega$		< 50 m $\Omega$
30 MHz	< 620 m $\Omega$		< 200 m $\Omega$

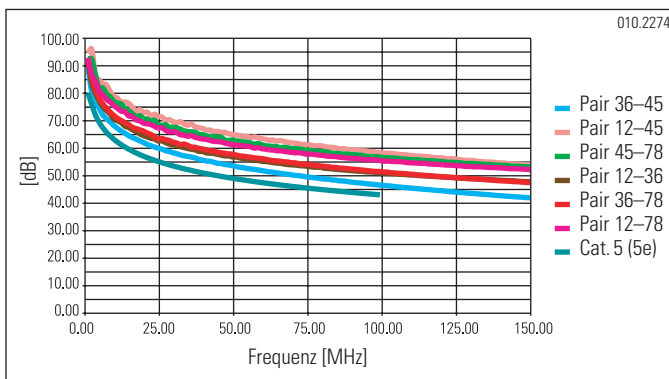
**Attenuation, Cat. 5e shielded**



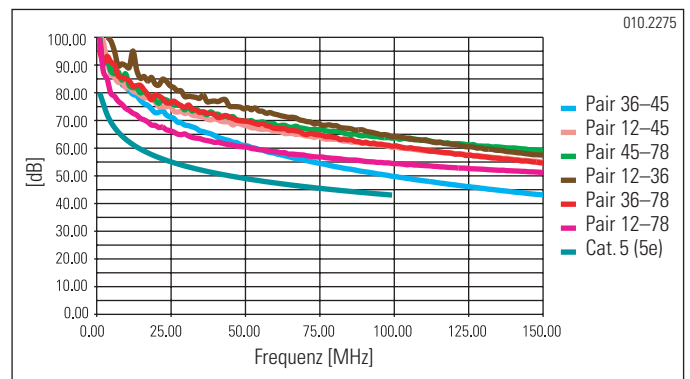
**Attenuation, Cat. 5e unshielded**



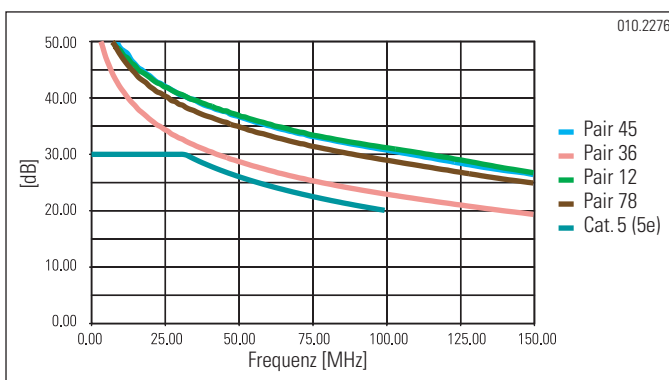
**NEXT, Cat. 5e shielded**



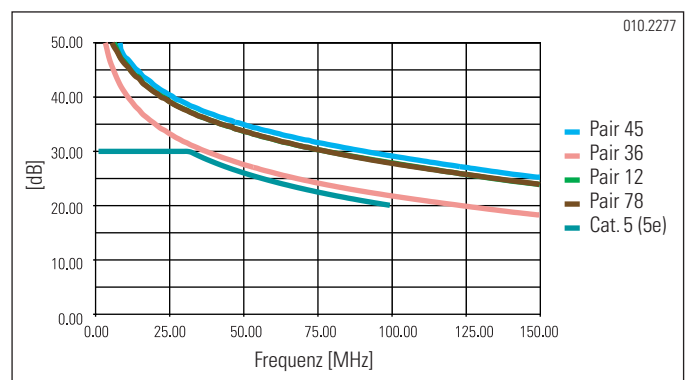
**NEXT, Cat. 5e unshielded**



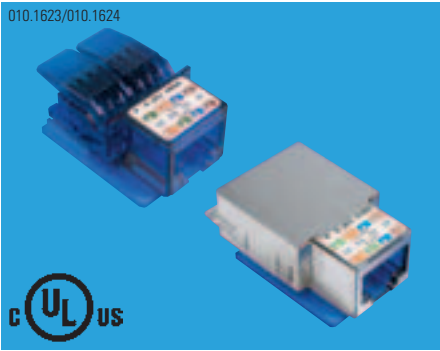
**Return Loss, Cat. 5e shielded**



**Return Loss, Cat. 5e unshielded**



RJ45 Connection Modules, Cat. 6
Specifications



R&M's Cat. 6 connection modules from the R&Mfreenet cabling system are ideal for voice and fast data transmissions. They can be used for transmission frequencies of up to 250 MHz.



Cat. 6 Features

- All Cat. 6 requirements of the relevant cabling standards (ISO/IEC 11801, EN 50173 and TIA/EIA 568B) are fulfilled.
- Cat. 6 values as laid down in the component standards IEC 60603-7 combined with R&M Cat. 6 patch cables from the R&Mfreenet cabling system are achieved.
- Best transmission characteristics with R&Mfreenet Cat. 6 patch cables (R302298-R302341).
- NEXT values at 100 MHz are by 11dB better than Cat. 5e.
- Compared with Cat. 5e in the channel, NEXT performance is tripled and bandwidth performance doubled.
- Gold-plating in contacting area and tin-plating in insulation displacement contact area.
- Highest reliability thanks to contact design without internal transfer points.
- Capacitive and inductive compensation.
- Compatible with Cat. 6 standard plugs.
- Fully mechanically and electrically backwards compatible with Cat. 5e and 5.
- Fit into all R&Mfreenet patch panels and outlets.
- Tool-free connection technique for installation cables of AWG 22-24 plus stranded cables of AWG 22/7-26/7.
- Wiring option acc. to TIA/EIA 568 A and B without crossover of pairs.
- Adhesive labels with colour wiring chart and integral production date.
- 360° shield coverage with shielded modules.
- Simple and time-saving, patented shield contacting with integral cable strain relief.
- Lead-free shield coating.
- Halogen-free materials.
- 3P, C-UL-US certified.

Standards

IEC 60603-7: Electrical Characteristics of the Telecommunications Outlets
ISO/IEC 11801 Second edition: September 2002
EN 50173-1: October 2002

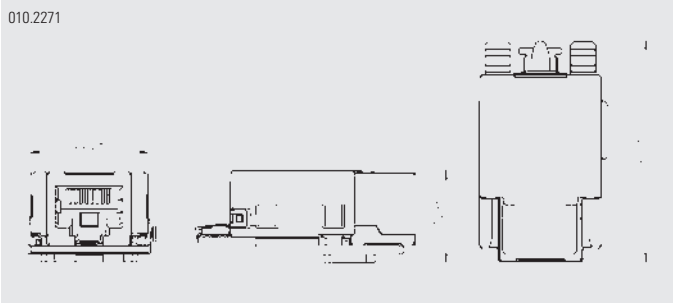
Mechanical Data

Table with 2 columns: Mechanical Data, Values. Rows include: Number of RJ45 jacks (1), Contact material (CuSn), Contact surface (> 0.76 µm gold over > 1.2 µm nickel), Jack insulation material (Polycarbonate (UL-94-V0)), Number of IDC\* connections (8/jack), IDC contact material (CuSn, tin-plated), IDC insulation material (Polycarbonate (UL-94-V0)), Admissible wire Ø (0.5 mm (AWG24) – 0.65 mm (AWG22)), Admissible strands Ø (AWG26/7 – AWG22/7).

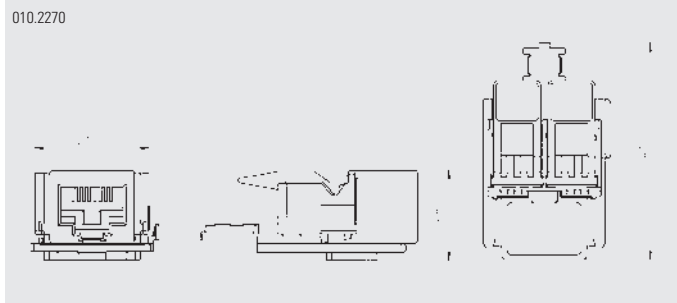
Table with 2 columns: Mechanical Data, Values. Rows include: Admissible insulation Ø (0.8 mm – 1.6 mm), Wire strain relief (Through labyrinth in IDC block), Cable strain relief (Through cable ties), Shield contacting on plug (Through contact springs (on plugs)), Shield contacting on installation cable (Large surface with shield lance (on cable)), Earth contacting (2 contact fingers for flat plug 4.8 x 0.5 mm), Shield material (CuSn, tin-plated 2-4 µm).

Table with 4 columns: Description, Standard value, Relevant standard, Typical value (20 °C). Rows include: Mating cycles min. (> 750, ISO/IEC 11801 2nd Ed., > 1000), Insertion cycles installation cables (> 20, ISO/IEC 11801 2nd Ed., > 20).

Dimensions shielded



Dimensions unshielded



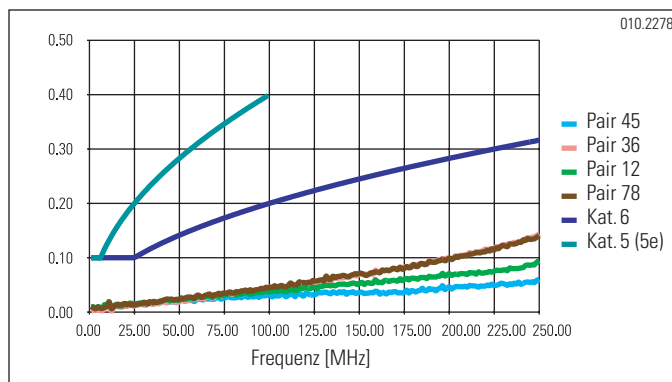
\* IDC = Insulation Displacement Contact.



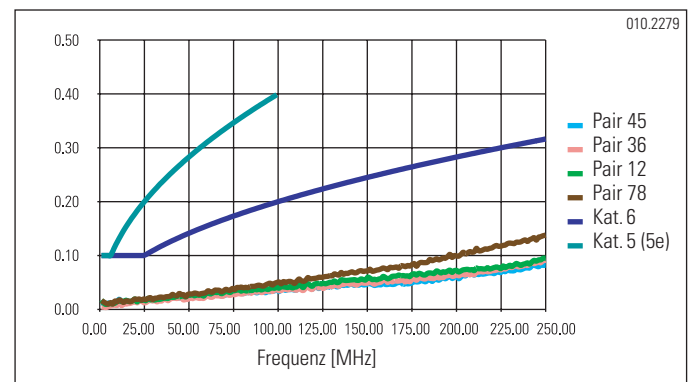
### Electrical Data

Description	Standard value	Relevant standard	Typical value (at 20 °C)
Electric strength	1000 V DC or AC peak	IEC 60603-7	> 1000 V <sub>eff</sub>
Insulation resistance	> 500 M $\Omega$ (500 V DC)	IEC 60603-7	> 500 M $\Omega$ (500 V DC)
Contact resistance	< 200 m $\Omega$	IEC 60603-7	< 50 m $\Omega$
Transfer impedance		prEN 50173	
1 MHz	< 100 m $\Omega$		< 20 m $\Omega$
10 MHz	< 200 m $\Omega$		< 50 m $\Omega$
30 MHz	< 620 m $\Omega$		< 200 m $\Omega$

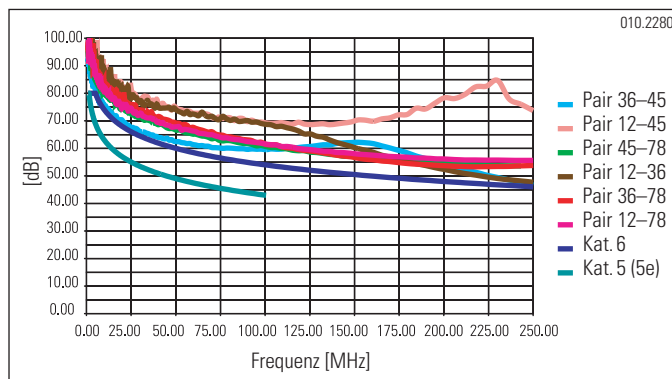
**Attenuation, Cat. 6 shielded**



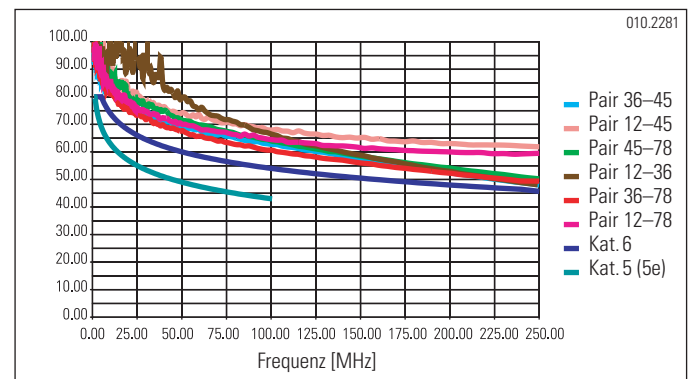
**Attenuation, Cat. 6 unshielded**



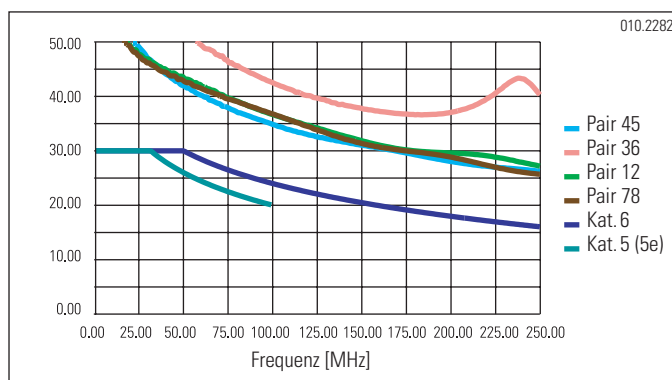
**NEXT, Cat. 6 shielded**



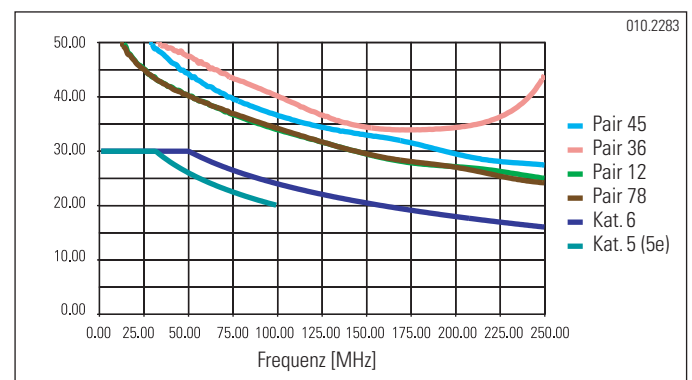
**NEXT, Cat. 6 unshielded**



**Return Loss, Cat. 6 shielded**



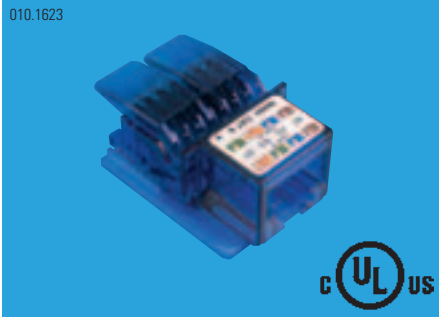
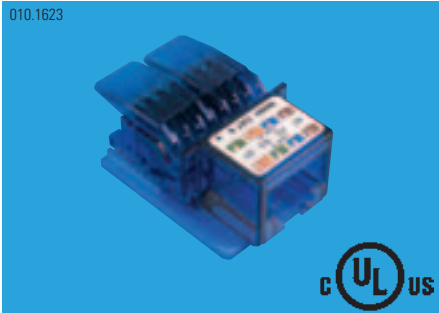


**Return Loss, Cat. 6 unshielded**

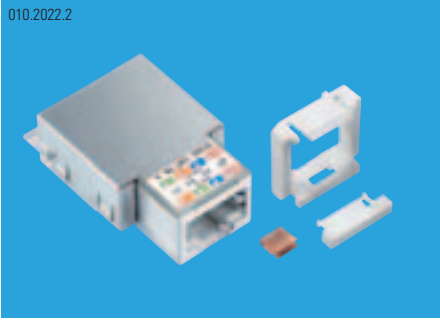


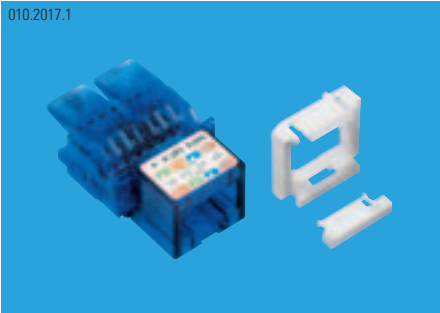


## RJ45 Connection Modules, shielded Cat. 5e and Cat. 6

Ordering Information	Description	Packing Unit	Part Number
 <p>040.0060</p>	<p><b>Connection Module, Cat. 5e, 1 x RJ45/s</b> Cat. 5e connection module with one shielded RJ45 port. Includes one EMC cover, one dust cover, and one cable tie and installation instructions.</p>	10	R925370 <span>CLASSICsystem</span>
 <p>040.0060</p>	<p><b>Connection Module, Cat. 5e, 100 x RJ45/s</b> 100 x RJ45 Cat. 5e connection module in an installer kit like R925370:  <ul style="list-style-type: none"> <li>– easy handling for the installer</li> <li>– time-saving installation at construction site</li> <li>– little packing material</li> <li>– little waste</li> <li>– little storage space required</li> <li>– low shipping costs</li> </ul> </p>	100	R304325 <span>CLASSICsystem</span>
 <p>010.1624</p>	<p><b>Connection Module, Cat. 6, 1 x RJ45/s</b> Cat. 6 connection module with one shielded RJ45 port. Includes one EMC cover, one dust cover, and one cable tie and installation instructions.</p>	10	R302372 <span>STARsystem</span>
 <p>010.1624</p>	<p><b>Connection Module, Cat. 6, 100 x RJ45/s</b> 100 x RJ45 Cat. 6 connection module in an installer kit like R302372:  <ul style="list-style-type: none"> <li>– easy handling for the installer</li> <li>– time-saving installation at construction site</li> <li>– little packing material</li> <li>– little waste</li> <li>– little storage space required</li> <li>– low shipping costs</li> </ul> </p>	100	R304327 <span>STARsystem</span>

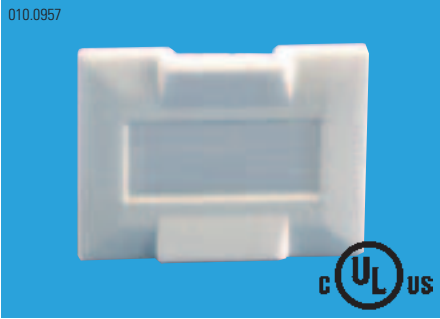
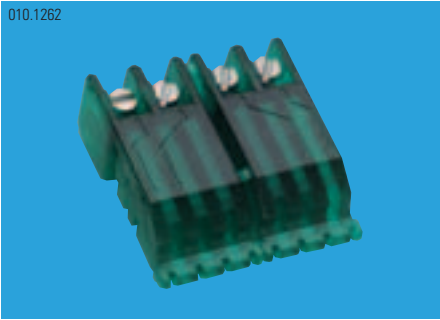
Ordering Information	Description	Packing Unit	Part Number
 <p>010.1041</p>	<p><b>Connection Module, Cat. 5e, 1 x RJ45/u</b> Cat. 5e connection module with one unshielded RJ45 port. Includes one dust cover, one cable tie and installation instructions.</p>	10	R925371 <span>CLASSICsystem</span>
 <p>010.1041</p>	<p><b>Connection Module, Cat. 5e, 100 x RJ45/u</b> 100 x RJ45 Cat. 5e connection module in an installer kit like R925371: – easy handling for the installer – time-saving installation at construction site – little packing material – little waste – little storage space required – low shipping costs</p>	100	R304326 <span>CLASSICsystem</span>
 <p>010.1623</p>	<p><b>Connection Module, Cat. 6, 1 x RJ45/u</b> Cat. 6 connection module with one unshielded RJ45 port. Includes one dust cover, one cable tie and installation instructions.</p>	10	R302373 <span>STARsystem</span>
 <p>010.1623</p>	<p><b>Connection Module, Cat. 6, 100 x RJ45/u</b> 100 x RJ45 Cat. 6 connection module in an installer kit like R302373: – easy handling for the installer – time-saving installation at construction site – little packing material – little waste – little storage space required – low shipping costs</p>	100	R304328 <span>STARsystem</span>

## RJ45 Snap-In Connection Modules, Cat. 5e and Cat. 6

Ordering Information	Description	Packing Unit	Part Number
 <p>010.2022.2</p>	<p><b>Snap-In Connection Module, Cat. 5e, 1 x RJ45/s</b></p> <p>Cat. 5e connection module with one shielded RJ45 port. Includes one EMC cover, one dust cover, and one cable tie and installation instructions.</p>	10	R302780 <span>CLASSICsystem</span>
 <p>010.2016.1</p>	<p><b>Snap-In Connection Module, Cat. 6, 1 x RJ45/s</b></p> <p>Cat. 6 connection module with one shielded RJ45 port. Includes one EMC cover, one dust cover, and one cable tie and installation instructions.</p>	10	R304373 <span>STARsystem</span>
 <p>010.2023.1</p>	<p><b>Snap-In Connection Module, Cat. 5e, 1 x RJ45/u</b></p> <p>Cat. 5e connection module with one unshielded RJ45 port. Includes one dust cover, one cable tie and installation instructions.</p>	10	R302518 <span>CLASSICsystem</span>
 <p>010.2017.1</p>	<p><b>Snap-In Connection Module, Cat. 6, 1 x RJ45/u</b></p> <p>Cat. 6 connection module with one unshielded RJ45 port. Includes one dust cover, one cable tie and installation instructions.</p>	10	R304374 <span>STARsystem</span>

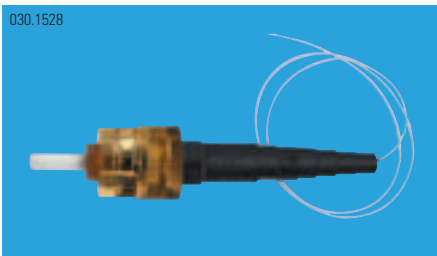
Ordering Information	Description	Packing Unit	Part Number
010.2022.1	<b>Connection Module, Cat. 5e, 1 x RJ45/s, Special</b> Cat. 5e connection module without mounting plate and one shielded RJ45 port. Includes one EMC cover, one dust cover, and one cable tie and installation instructions.	20	R305111 <small>CLASSICsystem</small>
	<b>Connection Module, Cat. 5e, 1 x RJ45/s, Flap Jack</b> Cat. 5e connection module without mounting plate and one shielded RJ45 port. Includes one processed EMC cover, one dust cover, one cable tie and installation instructions.	20	R305763 <small>CLASSICsystem</small>
010.2016	<b>Connection Module, Cat. 6, 1 x RJ45/s, Special</b> Cat. 6 connection module without mounting plate and one shielded RJ45 port. Includes one EMC cover, one dust cover, and one cable tie and installation instructions.	20	R305113 <small>STARsystem</small>
	<b>Connection Module, Cat. 6, 1 x RJ45/s, Flap Jack</b> Cat. 6 connection module without mounting plate and one shielded RJ45 port. Includes one processed EMC cover, one dust cover, one cable tie and installation instructions.	20	R305764 <small>STARsystem</small>
010.2023	<b>Connection Module, Cat. 5e, 1 x RJ45/u, Special</b> Cat. 5e connection module without mounting plate and one unshielded RJ45 port. Includes one dust cover, one cable tie and installation instructions.	20	R305112 <small>CLASSICsystem</small>
010.2017	<b>Connection Module, Cat. 6, 1 x RJ45/u, Special</b> Cat. 6 connection module without mounting plate and one unshielded RJ45 port. Includes one dust cover, one cable tie and installation instructions.	20	R305114 <small>STARsystem</small>

## Accessories RJ45 Connection Modules Cat. 5e and Cat. 6

Ordering Information	Description	Packing Unit	Part Number
 <p>010.0957</p>	<p><b>Dust Cover for RJ45 Jack</b></p> <p>Prevents soiling of the RJ45 jack contacts. C-UL-US certified. Colour: white/RAL 9010.</p>	10	R925602
 <p>010.1262</p>	<p><b>Screw Clip</b></p> <p>For screwed connections, suitable for single and twin pair applications, thus ideal for ISDN and comparable applications (pin assignments 1-7/7-8 or 3-6/4-5 are possible with one and the same Screw Clip). They are designed for stranded and solid conductors up to 2 x 0.8 mm and conform to the Cat. 5 requirements of ISO/IEC 11801 and EN 50173. Subsequent termination of the connection modules without Screw Clip is guaranteed. They are compatible with all connection modules as well as with all R&amp;M products featuring "Easy Lock" connection technique (e.g. voice patch panel).</p>	10	R35293

1

030.1528



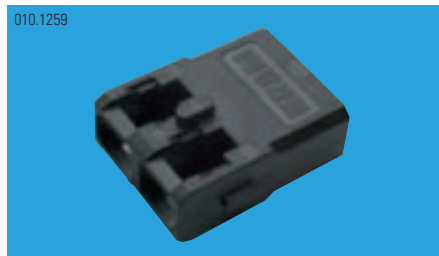
2

010.1967



3

010.1259



4

020.0700



5

030.1410

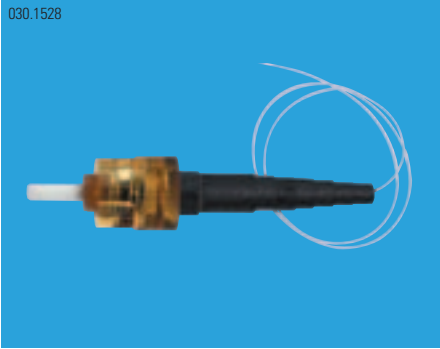


## Products

## Page

1 FO Connectors (ST, SC, MT-RJ) with Mechanical Crimp	36
2 Tool Kit for field terminated Connectors	37
3 SC-RJ Connector Housing	38
4 FO Adaptors	38
5 FO Test Equipment	41

FO Connectors (ST, SC, MT-RJ)  
with Mechanical Crimp



The mechanical crimp connectors type ST, SC and MT-RJ allows a simple and fast field termination of single fiber cables. These connectors have the same optical performance as the previous ST, SC and MT-RJ connectors. To carry out this mechanical crimp splicing, only mechanical tools are required.

Features

- The ferrule is pre-assembled with a fiber and a mechanical splice connection.
- Field installable without polishing.
- Short installation time.
- Compatible with the previous ST, SC and MT-RJ connectors.
- Low insertion loss.
- Multi- and singlemode available.
- For 0.9 mm to 3 mm cables (ST and SC).
- For 2 x 0.9 mm cables (MT-RJ).

Specifications (for 50/125 µm and 62.5/125 µm)

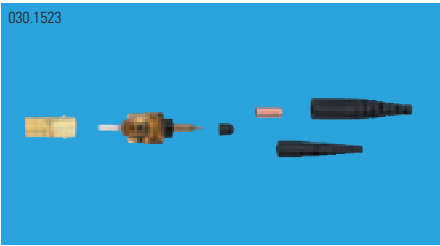
Test	Duration	Test parameters	Type ST	Type SC	Type MT-RJ
Insertion loss			< 0.5 dB	< 0.5 dB	< 0.5 dB
Duration	100 cycles	Connect/disconnect	< 0.3 dB	< 0.3 dB	< 0.3 dB
Temperature cycles	10 cycles (4 cycles/day)	– 25 °C to + 70 °C	< 0.3 dB	< 0.3 dB	< 0.3 dB
Straight pull		50 N	< 0.3 dB	< 0.3 dB	
Vibration	2 hours/x, y, z axis	10 to 55 Hz	< 0.3 dB	< 0.3 dB	
Impact	3 times/x, y, z axis	980 m/s, 6 m/s	< 0.3 dB	< 0.3 dB	< 0.3 dB

Ordering Information

Description

Packing Unit

Part Number



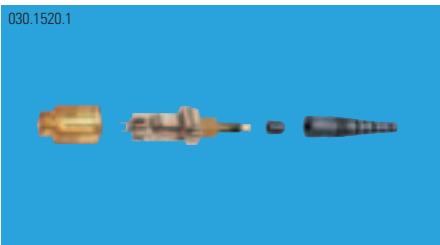
- ST Field Terminated, 9/125 µm
- ST Field Terminated, 50/125 µm
- ST Field Terminated, 62.5/125 µm

- 10 R305181
- 10 R305182
- 10 R305183



- SC Field Terminated, 9/125 µm
- SC Field Terminated, 50/125 µm
- SC Field Terminated, 62.5/125 µm
- Suitable for SC-RJ Connector Housings, on page 38
- SC-RJ Adaptors, on page 40

- 10 R305178
- 10 R305179
- 10 R305180



- MT-RJ Field Terminated, 50/125 µm
- MT-RJ Field Terminated, 62.5/125 µm

- 10 R305184
- 10 R305185



**i** Insertion loss in conformance with EN 186000 § 4.4.7, Method 7.





The tool kit is required for the field termination of the mechanical crimp connectors. Convenient handling is achieved with compact and light design.

**Features**

- Easy handling.
- Light and compact design.
- No power needed.
- Three tools in one set (ST, SC and MT-RJ).
- Suitable for solid and dry tight buffer.  
(See FO installation cables on pages 17 and following.)

Ordering Information	Description	Packing Unit	Part Number
A collection of tools including crimping pliers, fiber cleaver, tweezers, and strippers, shown against a blue background.	<p><b>Tool Kit I Standard</b></p> <p>For the field termination of mechanical crimp connectors.</p> <p>Supplied:</p> <ul style="list-style-type: none"><li>– Crimping tool (<b>ST, SC</b>)</li><li>– Fiber cleaver</li><li>– Tweezers</li><li>– Primary coating stripper</li><li>– Secondary coating stripper</li><li>– Bag</li><li>– Kevlar scissors</li><li>– Alcohol cleaning tissues</li><li>– Ferrules crimping aid</li><li>– Instructions (in English only)</li></ul> <p><b>ST and SC field termination tool kit</b></p>	1	R305186
A collection of tools including crimping pliers, fiber cleaver, tweezers, and strippers, shown against a blue background.	<p><b>Tool Kit II CTS*</b></p> <p>For the field termination of mechanical crimp connectors.</p> <p>Supplied are the same items as in Tool Kit I Standard plus:</p> <ul style="list-style-type: none"><li>– Crimping tool (<b>ST, SC and MT-RJ</b>)</li><li>– Optical coupler</li><li>– Red light source</li><li>– MT-RJ mounting adapter</li><li>– Patch cord</li></ul> <p><b>ST, SC and MT-RJ field termination tool kit</b></p>	1	R306000

**i** \* With the CTS Tool Kit (Continuity Test System) the light intensity of the scattering light (within the connector housing) from the red light source can be monitored, allowing repeatedly good results.

## FO Connector Housing and Adaptors

In order to fully benefit of the advantages of the SC-RJ connector it is possible e.g. to turn the field terminated SC connector into SC-RJ connectors by means of the SC-RJ connector housing.

### Features

- To establish a duplex connection.
- Mechanical rotation lock.
- Compatible with the most current SC Simplex plugs (ask for compatibility list).

### Ordering Information



### Description

#### SC-RJ Connector Housing

To establish a duplex connection.  
Material: PBT  
Colour: black/RAL9005

### Packing Unit

10

### Part Number

R30578

VISIONsystem

The adaptors are used for the simple connecting of two FO connectors.

### Features

- Comply with international standards.
- Low coupling loss.
- Convenient way to join and separate FO connectors.
- Suitable for field- and pre-terminated connectors.

### Ordering Information



### Description

#### FO Adaptor ST, SM/MM

– Zirconia ceramic alignment sleeve. Singlemode.

### Packing Unit

12

### Part Number

R30802

VISIONsystem

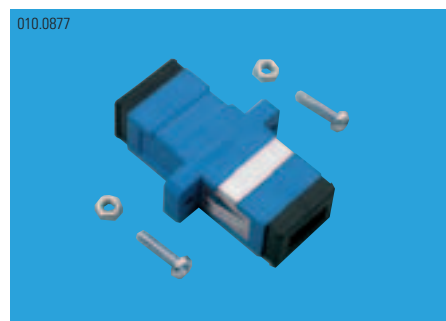
#### FO Adaptor ST, MM

– PhBr alignment sleeve. Multimode.  
ST/ST adaptor acc. to IEC 60874-10.  
Bayonet catch locking mechanism.  
Insertion loss (physical contact): < 0.5 dB

12

R303562

VISIONsystem



#### FO Adaptor SC, SM/MM, blue

– Zirconia ceramic alignment sleeve. Singlemode.

12

R30803

VISIONsystem

#### FO Adaptor SC, SM, beige

– PhBr alignment sleeve. Multimode.  
SC/SC adaptor acc. to IEC 60874-10.  
For push-pull connectors.  
Insertion loss (physical contact): < 0.5 dB

12

R306877

VISIONsystem

Ordering Information	Description	Packing Unit	Part Number
010.1970	<b>FO Adaptor MT-RJ, SM/MM, blue</b>	12	R305401 
	<b>FO Adaptor MT-RJ, MM, beige</b>	12	R305400 
010.2148/030.0640.3	<b>FO Adaptor E-2000™, MM</b> – Zirconia ceramic alignment sleeve. Single-/Multimode. E-2000™/E-2000™ adaptor acc. to CECC 86 275-801.		
	<b>50/125 µm black/orange</b>	12	R305816 
	<b>62.5/125 µm black/black</b>	12	R301457 
010.2152/010.2153	<b>FO Adaptor E-2000™, Compact, MM</b> – Zirconia ceramic alignment sleeve. Single-/Multimode.		
	<b>50/125 µm black/orange</b>	12	R305814 
	<b>62.5/125 µm black/black</b>	12	R305544 
	<b>FO Adaptor E-2000™, Compact, MM</b> – PhBr alignment sleeve. Multimode.		
	<b>50/125 µm black/orange</b>	12	R306878 
	<b>62.5/125 µm black/black</b>	12	R306882 
010.0878	<b>FO Hybrid Adaptor, SC Duplex/ST, SM/MM, blue</b> – Zirconia ceramic alignment sleeve. Singlemode. ST/SC Duplex adaptor acc. to IEC 60874-19. To connect SC and ST connectors. Insertion loss (physical contact): < 0.5 dB.	12	R30804 
010.0879	<b>FO Adaptor SC, SM/MM, Duplex, blue</b> – Zirconia ceramic alignment sleeve. Singlemode.	12	R30805 
	<b>FO Adaptor SC, MM, Duplex, beige</b> – PhBr alignment sleeve. Multimode. SC/SC Duplex adaptor acc. to IEC 60874-19. For push-pull connectors. Insertion loss (physical contact): < 0.3 dB.	12	R303561 
	 E-2000™: Manufactured under licence from Diamond SA, CHE-6616 Losone.		

## FO Adaptors

Ordering Information	Description	Packing Unit	Part Number
010.1796.2 	<b>FO Adaptor MT-RJ, Duplex, black</b> – Multi- and Singlemode capable. – Fitting Duplex cutout.	12	R303558 
030.1084 	<b>FO Adaptor SC-RJ, SM/MM, Snap-In</b> – Zirconia ceramic alignment sleeve. Singlemode.	12	R302537 
	<b>FO Adaptor SC-RJ, SM, Snap-In</b> – PhBr alignment sleeve. Multimode. Supplied: – 1 adaptor – 1 Snap-In frame – 1 dust cover	12	R307013 
020.0700 	<b>FO Adaptor SC-RJ, SM/MM, One-Channel Module</b> – Zirconia ceramic alignment sleeve. Singlemode.	12	R30574 
	<b>FO Adaptor SC-RJ, SM, One-Channel Module</b> – PhBr alignment sleeve. Multimode. Module to transmit one FO channel. Supplied: – 1 adaptor                      – Mounting plate – 2 dust covers                – Installation instructions – Label	12	R307048 
010.2155/010.2156 	<b>FO Adaptor E-2000™ Compact, MM, Snap-In</b> – Zirconia ceramic alignment sleeve. Single-/ Multimode. Supplied: – 1 adaptor – 1 Snap-In frame – 1 dust cover	12	R305725 
	<b>50/125 µm black/orange</b> <b>62.5/125 µm black/black</b>	12	R305545 
010.2158/010.2159 	<b>FO Adaptor E-2000™ Compact, MM, One-Channel Module</b> – Zirconia ceramic alignment sleeve. Single-/ Multimode. Module to transmit one FO channel. Supplied: – 1 adaptor                      – Dust cover – Mounting plate                – Label	12	R305815 
	<b>50/125 µm black/orange</b> <b>62.5/125 µm black/black</b>	12	R305543 



In cooperation with the company Noyes we offer portable optical power test equipment.

The measuring of optical power is your guarantee for a good and future-proof installation.

Both FO power meters are approved as FO certification test sets.

## Ordering Information

## Description

## Packing Unit

## Part Number

030.1409



### FO Testkit MLP 4 – 2

1

R303946

VISIONsystem

- Attenuation measuring at 850 nm and 1300 nm.
- Handy in size, and field-capable battery operation.
- Manual available in English, French, German and Spanish.
- Can be referenced for any wavelength.
- ST adapter.
- Supplied without patch cord.

030.1410



### FO Testkit T410

1

R303947

VISIONsystem

- Measuring of lengths and attenuation losses on multimode links possible (850 nm and 1300 nm with LED).
- Manual available in English and French.
- Storage capacity of up to 1000 measuring results in defined files.
- PC data transfer to Windows 95, 98 and NT 4.0 with supplied software.
- Selectable test standard with PASS/FAIL result.
- SC (incl. adaptercaps for MT-RJ+ ST).
- Supplied without patch cord.

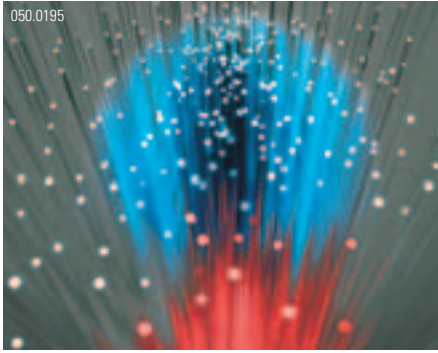
# R&M cabling solution

## Category 6 – operating worldwide

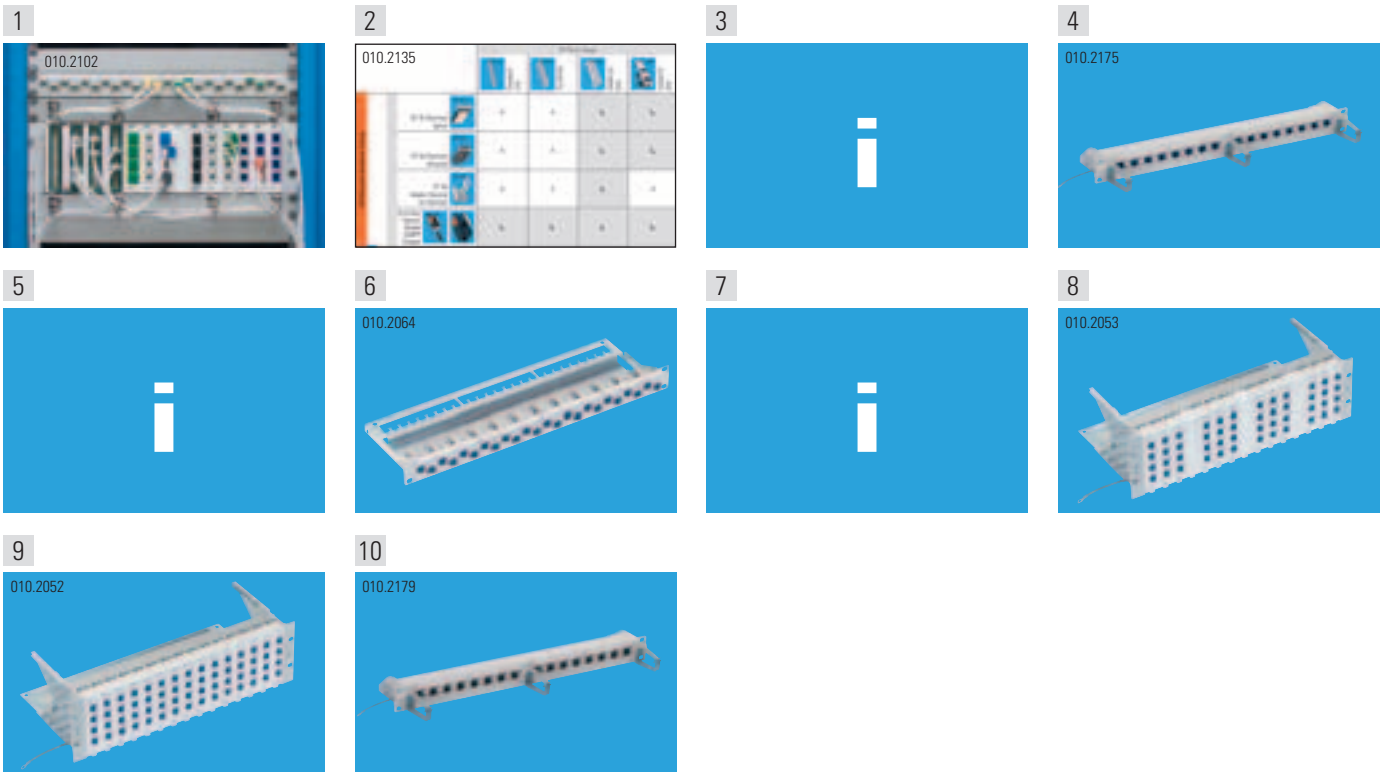


Did you know that R&M is one of the leading manufacturers of shielded and unshielded Cat. 6 systems worldwide?




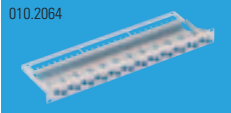



For FO Patch Panels please refer to page 61.



Products	Page
1 Introduction 19" RJ45 Patch Panels, Cat. 5e and Cat. 6	44
2 19" Patch Panels Modularity Chart	45
3 Specifications 19" 1U Patch Panels, 16 x RJ45, Cat. 5e and Cat. 6	46
4 19" 1U Patch Panels, 16 x RJ45, Cat. 5e and Cat. 6	47
5 Specifications 19" 1U Patch Panels, 24 x RJ45, Cat. 5e and Cat. 6	48
6 19" 1U Patch Panels, 24 x RJ45, Cat. 5e and Cat. 6	49
7 Specifications 19" 3U Global Patch Panels, Cat. 5e and Cat. 6	50
8 19" 3U Global Patch Panels, 48 x RJ45, Cat. 5e and Cat. 6	51
9 19" 3U Global Patch Panels, 60 x RJ45, Cat. 5e and Cat. 6	52
10 19" Patch Panels empty, Patching Extras and Accessories	53

Patch panels are used for terminating horizontal or backbone installation cables and for serving as an interface to the various network equipment. In horizontal cabling, the RJ45 ports of the patch panel are connected in a star topology by four pair installation cables to the telecommunications outlets. In this way, network equipment such as host computers, concentrators, PABXs and so forth can be easily connected to the desired telecommunications outlets by means of patch/line cables. Patch panels and connection modules comply with the standards of ISO/IEC 11801, EN 50173 and TIA/EIA 568B. In order to fulfil the demands of the American and the Canadian markets, the patch panels and connection modules are C-UL-US certified

Patch Panels	19" Solution	1U	2U	3U
<b>1</b> Standard 010.2175 	✓	16 port Page 46	—	—
<b>2</b> 24 port 010.2064 	✓	24 port Page 48	—	—
<b>3</b> Global 010.2053 	✓	—	—	48/60 port Page 51

Accessories starting on page 54.

Patch panels Modular are available upon request in the versions 1U, 2U, 3U and 4U.



19" = 482.60 mm

1U = 44.45 mm

1HP = 5.08 mm

✓ = combination possible

— = combination not possible



			19" Patch Panels			
			010.2175 Standard (1U)	010.2064 1U 24 Port	010.2053 Global Cu (3U)	010.2095 Global FO (3U)
VISIONsystem Backbone Cabling		19" 3U Fiberliner Splice 010.1414	I	I	✓	✓
		19" 3U Fiberliner Breakout 030.0345	I	I	✓	✓
		19" 3U Adapter Housing for Fiberliner 010.1261	I	I	✓	I
		SC-RJ One-Channel-Module E2000™ Compact 010.2158 020.0700	✓	✓	✓	✓
		RJ45 Connection Module/ Cat. 6 010.1623 010.1624	✓	✓	✓	I
STARsystem CLASSICsystem		SRV Swivel Unit 020.0967	I	I	✓	I
		D-Sub Jack Strip 9/15/25 pins 020.0068	I	I	✓	I
		Coax 020.0202	I	I	✓	I
		RJ45 Connection Module/ Cat. 5e 010.1041 040.0060	✓	✓	✓	I

- i** ✓ = combination possible  
 - = combination not possible  
 "I" = Snap-In RJ45 connection module

## 19" 1U Patch Panels, 16 x RJ45 Cat. 5e and Cat. 6, Specifications

010.2175



For smaller distributors, the use of 19" 1U patch panels is recommended. Up to 16 shielded or unshielded single RJ45 connection modules can be installed in the 19" 1U rack, which corresponds to a maximum connection density of 16 RJ45 ports. Thanks to jumpering brackets the line and patch cords can be neatly arranged at the side of the rack.

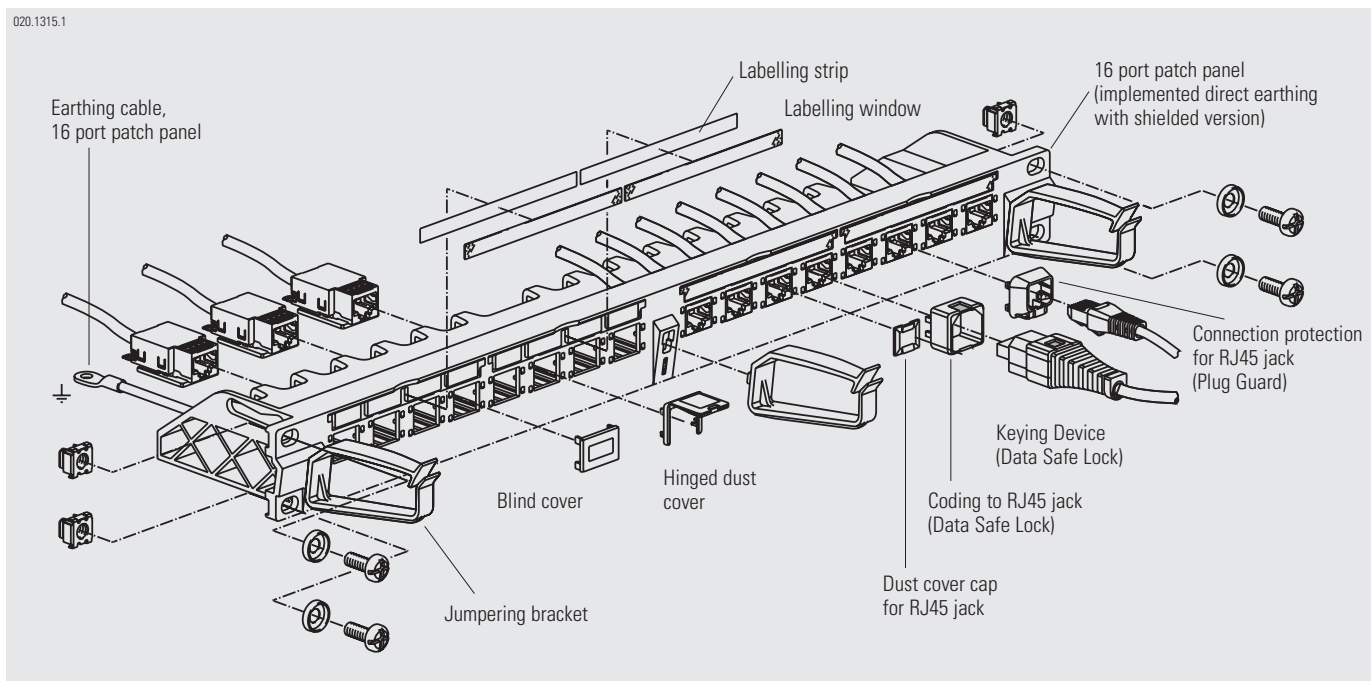
### Features


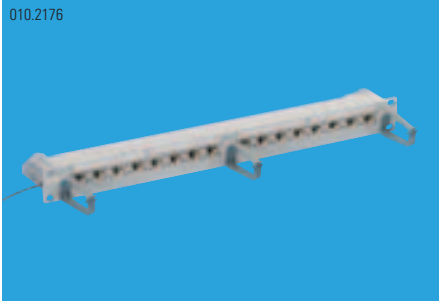



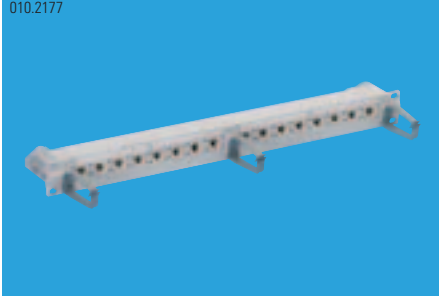

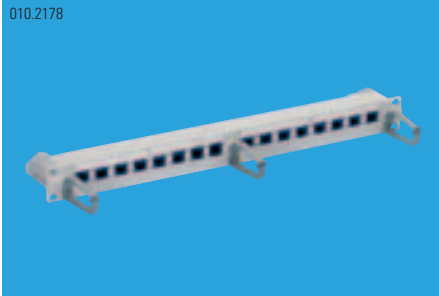
- Modular design for 16 x shielded or unshielded single RJ45 connection modules.
- Jumpering bracket set to be mounted at the rack.
- Integrated cable tie shelf.
- The shielded patch panel features a full earthing system.
- Suitable for use with "Data Safe Lock" keying system for protection against electronic damage and operational network malfunctions.
- Labelling windows with exchangeable labelling strips.
- Individual labelling possible with A4 labelling sheet.

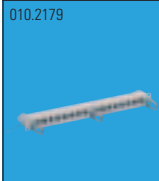

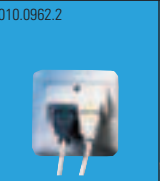


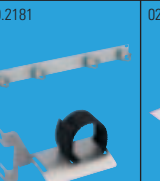

### Technical Data

- Overall dimensions: 19", 1U.
- Patch panel: polycarbonate, fiber glass reinforced.
- Patch panel colour: median grey/NCS 2502-B.
- Halogenated: no (according to DIN/VDE 0472/815).
- Fire classification: UL94V-0.

020.1315.1

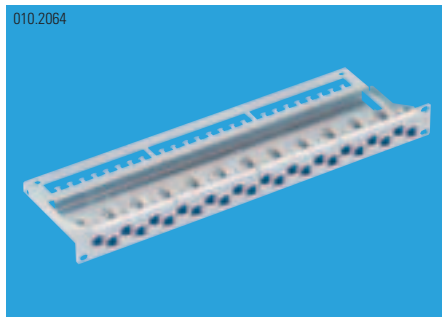


Ordering Information	Description	Packing Unit	Part Number
 	<b>19" 1U Patch Panel, 16 x RJ45/s, Cat. 5e</b> Patch panel with 16 shielded Cat. 5e RJ45 ports. Kit comprises one 19" 1U rack, 16 shielded, single RJ45 Cat. 5e connection modules, mounting kit, three jumpering brackets, four labelling strips and four labelling windows. Includes EMC covers, cable ties, dust covers and installation instructions. For technical data please refer to page 46.	1	R305885 <span>CLASSICsystem</span>
 	<b>19" 1U Patch Panel, 16 x RJ45/s, Cat. 6</b> Patch panel with 16 shielded Cat. 6 RJ45 ports. Kit comprises one 19" 1U rack, 16 shielded, single RJ45 Cat. 6 connection modules, mounting kit, three jumpering brackets, four labelling strips and four labelling windows. Includes EMC covers, cable ties, dust covers and installation instructions. For technical data please refer to page 46.	1	R305887 <span>STARsystem</span>
 	<b>19" 1U Patch Panel, 16 x RJ45/u, Cat. 5e</b> Patch panel with 16 unshielded Cat. 5e RJ45 ports. In all other respects corresponding to the shielded version.	1	R305886 <span>CLASSICsystem</span>
 	<b>19" 1U Patch Panel, 16 x RJ45/u, Cat. 6</b> Patch panel with 16 unshielded Cat. 6 RJ45 ports. In all other respects corresponding to the shielded version.	1	R305888 <span>STARsystem</span>

Matching Accessories								
19" 1U 16 port Patch Panel, empty	Hinged Dust Cover	RJ45 Keying System "Data Safe Lock"	Plug Guard	Splash Protective Line	Accessories 19" Patch Panels	Labelling Sheet		
010.2179	010.1885.1	010.0962.2	030.1509	010.2128.1	010.2181	020.0045		
								
Page 53	Page 153	Page 154	Page 156	Page 161	Page 57	Page 60		

## 19" 1U Patch Panels, 24 x RJ45 Cat. 5e and Cat. 6, Specifications

010.2064



For smaller distributors with high packing density, the use of our 19" 1U patch panels with 24 ports is recommended. A fully equipped patch panel is supplied. Moreover, a fully equipped shielded or unshielded version is available. Thanks to a special adapter unit the very popular and well-proven RJ45 connections module can be used.

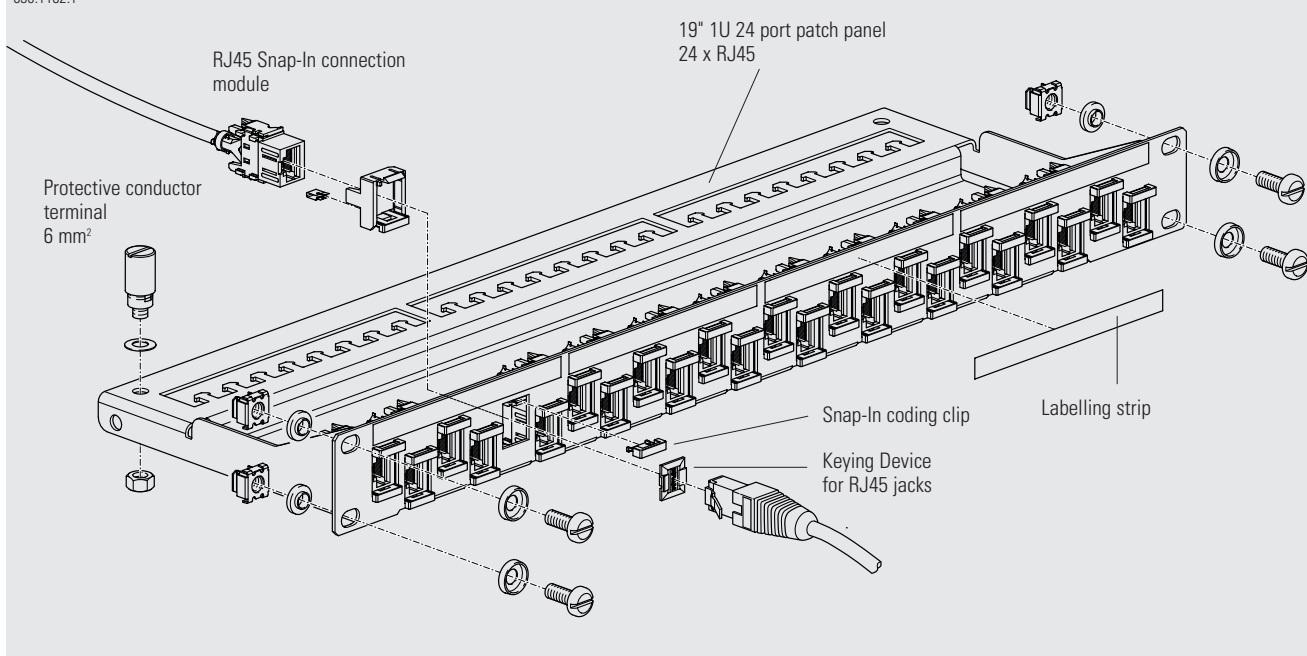
### Features

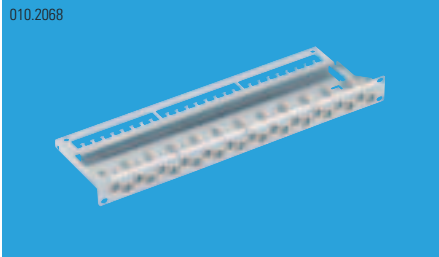
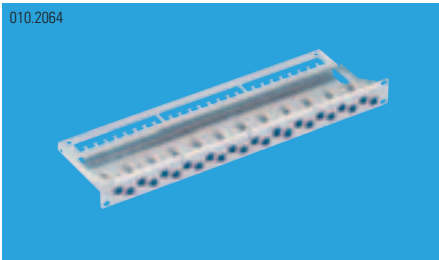
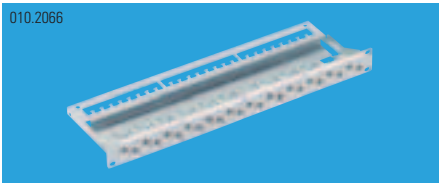
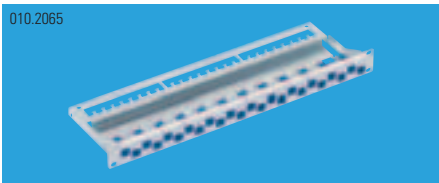
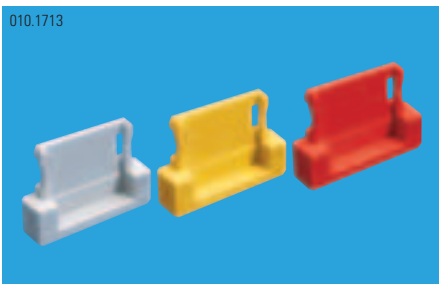
- Individual termination of each module.
- Mechanical locking of the adapter snap by means of a plastic wedge.
- Colour coding of 8 colours by means of plastic wedge.
- Integrated cable tie shelf.
- Direct earthing concept via metal patch panel.
- Protective conductor terminal optionally available!
- Labelling window with pertinent exchangeable labelling strips.
- Individual labelling possible thanks to A4 labelling sheet.

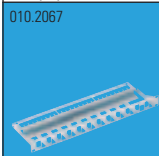


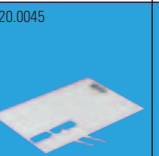
### Technical Data

- Overall dimensions: 19", 1U.
- Patch panel: sheet steel, galvanised and blue passivated.
- Earth clamp: copper plate, tin-coated.
- Adapter unit material: polycarbonate.
- Front screen material: ABS.
- Front screen colour: median grey/NCS 2502-B.
- Ground colour adapter unit: grey/RAL 7035.
- Wedge material: polypropylene.
- Ground colour wedge: grey/RAL 7035.
- Halogenated: no (according to DIN/VDE 0472/815).
- Fire classification adapter unit: UL94V-0.
- Fire classification front screen: UL94HB.
- Fire classification wedge: UL94HB.

030.1162.1



Ordering Information	Description	Packing Unit	Part Number
	<b>19" 1U Patch Panel, 24 x RJ45/s, Cat. 5e</b> Patch panel with 24 shielded Cat. 5e RJ45 ports. Kit comprises one 19" 1U metal rack with integrated cable tie shelf, 24 shielded RJ45 Cat. 5e connection modules and mounting kit. Includes EMC covers, dust covers, cable ties and installation instructions. For technical data please refer to page 48.	1	R305121 <b>CLASSICsystem</b>
	<b>19" 1U Patch Panel, 24 x RJ45/s, Cat. 6</b> Patch panel with 24 shielded Cat. 6 RJ45 ports. Kit comprises one 19" 1U metal rack with integrated cable tie shelf, 24 shielded RJ45 Cat. 6 connection modules and mounting kit. Includes EMC covers, dust covers, cable ties and installation instructions. For technical data please refer to page 48.	1	R305120 <b>STARsystem</b>
	<b>19" 1U Patch Panel, 24 x RJ45/u, Cat. 5e</b> Patch panel with 24 unshielded Cat. 5e RJ45 ports. In all other respects corresponding to the shielded version.	1	R305118 <b>CLASSICsystem</b>
	<b>19" 1U Patch Panel, 24 x RJ45/u, Cat. 6</b> Patch panel with 24 unshielded Cat. 6 RJ45 ports. In all other respects corresponding to the shielded version.	1	R305117 <b>STARsystem</b>
	<b>Snap-In Coding Clip, anthracite</b>	10	R302151
	<b>Snap-In Coding Clip, blue</b>	10	R302152
	<b>Snap-In Coding Clip, brown</b>	10	R302153
	<b>Snap-In Coding Clip, green</b>	10	R302154
	<b>Snap-In Coding Clip, red</b>	10	R302155
	<b>Snap-In Coding Clip, violet</b>	10	R302156
	<b>Snap-In Coding Clip, white</b>	10	R302157
	<b>Snap-In Coding Clip, yellow</b>	10	R302158

Matching Accessories							
19" 1U 24 port Patch Panel, empty	Accessories 19" Patch Panels	Protective Conductor Terminal	Labelling Sheet				
							
010.2067	010.2181	010.1673	020.0045				
Page 53	Page 57	Page 59	Page 60				

## 19" 3U Global Patch Panels Cat. 5e and Cat. 6, Specifications

010.2104



010.2105



For larger patch panels the use of Global Systems is recommended. The 19" 3U Global patch panels can be mounted with fifteen 4 x 1 port connection module holders or blind elements. This permits the building of patch panels with up to 60 RJ45/SC-RJ ports. With the aid of the adapter units various special solutions can be implemented.

The ingenious forced lock and unlock system guarantees that the elements are securely held in the 3U patch panel.

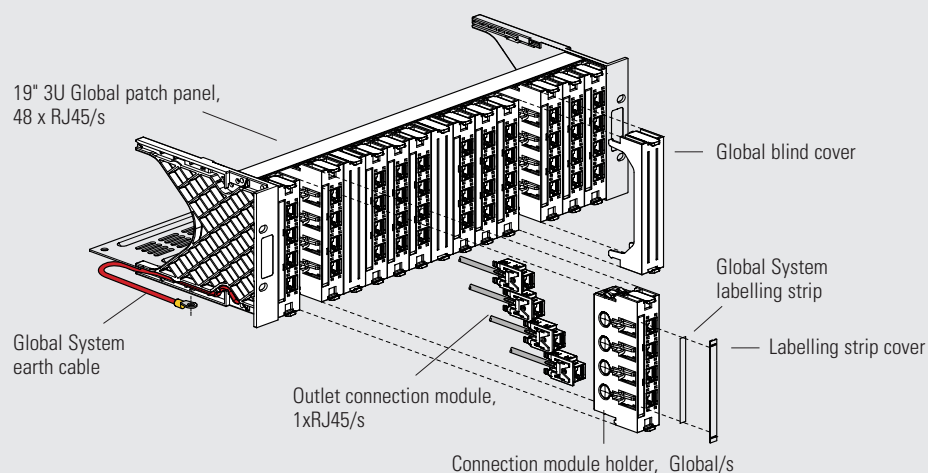
### Features

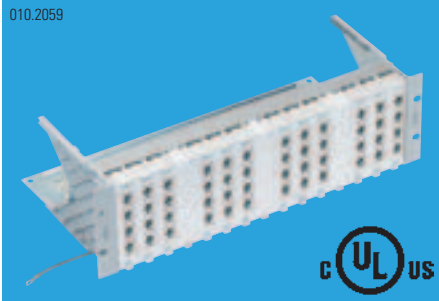
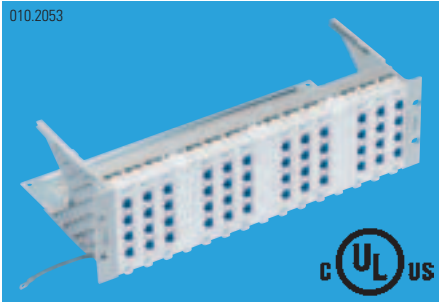
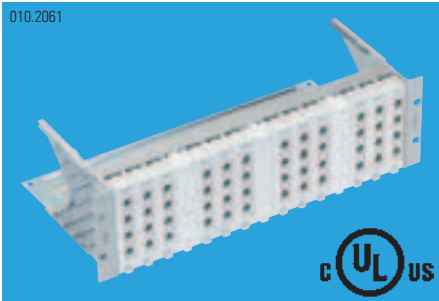
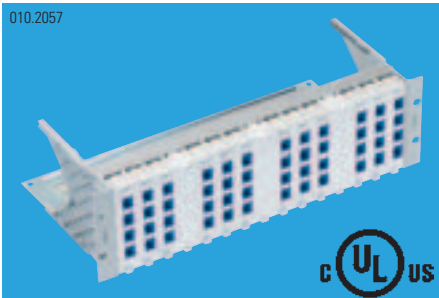
- Modular design of the patch panels with up to 60 shielded or unshielded RJ45 ports or 60 SC-RJ ports.
- Installation and service friendly thanks to the "Snap & Go" fastening system.
- Complete earthing system integrated in the shielded patch panel.
- Ready for the keying system "Data Safe Lock".
- Exchangeable labelling strips.
- Integrated cable tie shelf.

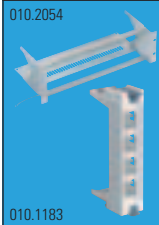

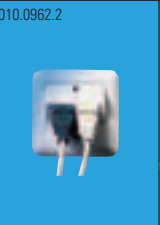

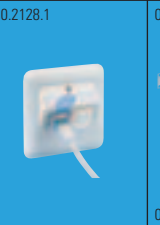
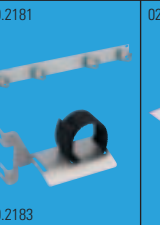

### Technical Data

- Overall dimensions: 19", 3U, 84HP.
- Patch panel profiles: aluminium, neutrally anodised.
- Patch panels side walls: polyamide, fiber glass reinforced.
- Colour side walls: median grey/NCS 2502-B.
- Connection module holder: polycarbonate, fiber glass reinforced.
- Colour connection module holder: light grey/NCS 1005-R80B.
- Slider: polycarbonate.
- Colour slider: median grey/NCS 2502-B.
- Halogenated: no (according to DIN/VDE 0472/815).
- Fire classification side walls: UL94HB.
- Fire classification connection module holder: UL94V-0.
- Certifications: C-UL-US type approved in File no. E174388.

020.1026

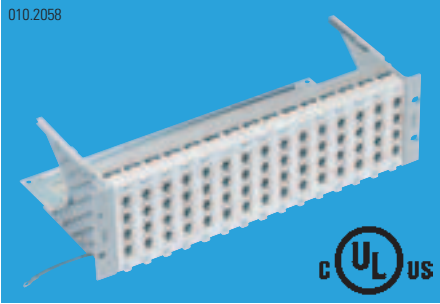
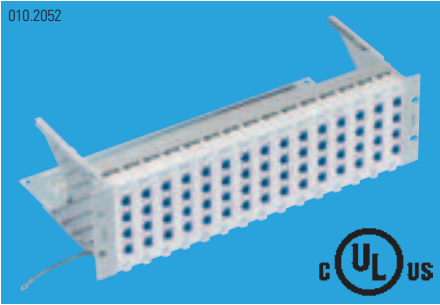
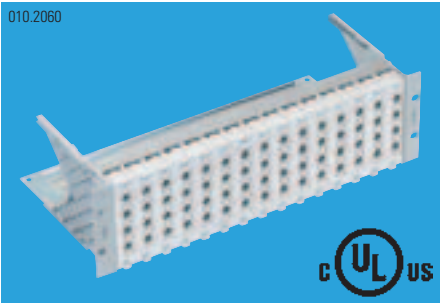
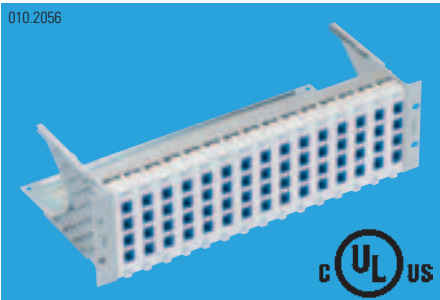





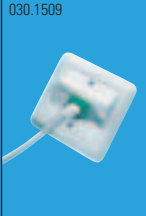

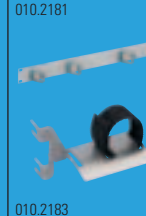
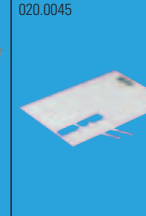
Ordering Information	Description	Packing Unit	Part Number
	<b>19" 3U Global Patch Panel, 48 x RJ45/s, Cat. 5e</b> Patch panel with 48 shielded Cat. 5e RJ45 ports. Kit comprises one 19" 3U Global patch panel/s, twelve connection modules holders, Global/s, 48 shielded Cat. 5e connection modules and three Global blind covers. Including cable tie shelf, earthing system, EMC covers, mounting kit, dust covers, cable ties, labelling strips and installation instructions. For technical data please refer to page 50.	1	R35404 <span>CLASSICsystem</span>
	<b>19" 3U Global Patch Panel, 48 x RJ45/s, Cat. 6</b> Patch panel with 48 shielded Cat. 6 RJ45 ports. Kit comprises one 19" 3U Global patch panel/s, twelve connection modules holders, Global/s, 48 shielded Cat. 6 connection modules and three Global blind covers. Including cable tie shelf, earthing system, EMC covers, mounting kit, dust covers, cable ties, labelling strips and installation instructions. For technical data please refer to page 50.	1	R302360 <span>STARsystem</span>
	<b>19" 3U Global Patch Panel, 48 x RJ45/u, Cat. 5e</b> Patch panel with unshielded components. In all other respects corresponding to the shielded version.	1	R35405 <span>CLASSICsystem</span>
	<b>19" 3U Global Patch Panel, 48 x RJ45/u, Cat. 6</b> Patch panel with unshielded components. In all other respects corresponding to the shielded version.	1	R302361 <span>STARsystem</span>

Matching Accessories							
19" 3U Global Patch Panel, empty	Hinged Dust Cover	RJ45 Keying System "Data Safe Lock"	Plug Guard	Splash Protective Line	Accessories 19" Patch Panels	Labelling Sheet	
							
010.1183					010.2183		
Page 53	Page 153	Page 154	Page 156	Page 161	Page 57	Page 60	







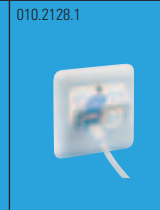
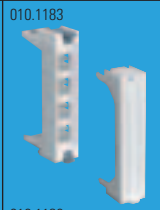
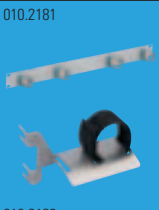
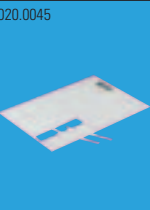






**19" 3U Global Patch Panels, 60 x RJ45**  
**Cat. 5e and Cat. 6**

Ordering Information	Description	Packing Unit	Part Number
	<b>19" 3U Global Patch Panel, 60 x RJ45/s, Cat. 5e</b> Patch panel with 60 shielded Cat. 5e RJ45 ports. Kit comprises one 19" 3U Global patch panel/s, fifteen connection modules holders, Global/s and 60 shielded Cat. 5e connection modules. Apart from that it is equipped identical to the 48 port patch panel.	1	R35406 <span>CLASSICsystem</span>
	<b>19" 3U Global Patch Panel, 60 x RJ45/s, Cat. 6</b> Patch panel with 60 shielded Cat. 6 RJ45 ports. Kit comprises one 19" 3U Global patch panel/s, fifteen connection modules holders, Global/s and 60 shielded Cat. 6 connection modules. Apart from that it is equipped identical to the 48 port patch panel.	1	R302362 <span>STARsystem</span>
	<b>19" 3U Global Patch Panel, 60 x RJ45/u, Cat. 5e</b> Patch panel with unshielded components. In all other respects corresponding to the shielded version.	1	R35407 <span>CLASSICsystem</span>
	<b>19" 3U Global Patch Panel, 60 x RJ45/u, Cat. 6</b> Patch panel with unshielded components. In all other respects corresponding to the shielded version.	1	R302363 <span>STARsystem</span>

Matching Accessories							
19" 3U Global Patch Panel, empty	Hinged Dust Cover	RJ45 Keying System "Data Safe Lock"	Plug Guard	Splash Protective Line	Accessories 19" Patch Panels	Labelling Sheet	
							
010.2054	010.1885.1	010.0962.2	030.1509	010.2128.1	010.2181	020.0045	
010.1183					010.2183		
Page 53	Page 153	Page 154	Page 156	Page 161	Page 57	Page 60	











Ordering Information	Description	Packing Unit	Part Number
	<b>19" 1U 16 Port Patch Panel, empty/s</b> Accommodates 16 shielded, single RJ45 connection modules (R925370/R302372). Includes mounting kit, earthing system, three jumpering brackets, four labelling strips and four labelling windows.	1	R305889
	<b>19" 1U 16 Port Patch Panel, empty/u</b> Accommodates 16 unshielded, single RJ45 connection modules (R925371/R302373). Apart from that it is equipped identical to the shielded version.	1	R305890
	<b>19" 1U 24 Port Patch Panel, empty</b> Accommodates 24 shielded (R302780/R304373) and 24 unshielded (R302518/R304374) RJ45 Snap-In connection modules. Includes mounting kit, four labelling strips and four labelling windows.	1	R305119
	The plastic screen needs to be removed to insert the FO Adaptor SC-RJ, SM/MM, Snap-In.	1	R302537
	<b>19" 3U Global Patch Panel/s</b> Accommodates up to fifteen Global/s connection module holders or Global blind covers. Includes mounting kit, earthing system and cable tie shelf.	1	R35408
	<b>19" 3U Global Patch Panel/u</b> Accommodates up to fifteen Global/u connection module holders, Global blind covers or six Global adapter frames. Includes mounting kit and cable tie shelf.	1	R35409




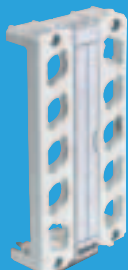

Matching Modules			Matching Accessories				
Connection Modules s/u Cat. 5e and Cat. 6	Snap-In Connection Modules Cat. 5e and Cat. 6	FO Adaptors SC-RJ E2000™ Compact	Security Products	Splash Protective Line	19" 3U Global Patch Panels	Accessories 19" Patch Panels	Labelling Sheet
							
							
Page 30	Page 32	Page 40	Page 151	Page 161	Page 54	Page 57	Page 60

## Accessories



### 19" 3U RJ45 Global Patch Panels


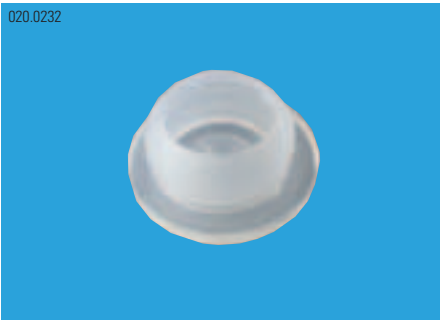
Ordering Information	Description	Packing Unit	Part Number
 <p>010.1183</p> <p></p>	<p><b>Connection Module Holder, Global/s</b></p> <p>Accommodates:</p> <ul style="list-style-type: none"> <li>– 4 shielded RJ45 connection modules.</li> </ul> <p>Includes earthing plate, labelling strip and installation instructions.</p> <p>Technical data:</p> <p>Material: polycarbonate, fiber glass reinforced.</p> <p>Halogen-free according to DIN/VDE 0472/815.</p> <p>Fire classification: UL94V-0.</p> <p>Colour: light grey/NCS 1005-R80B.</p>	1	R35402
 <p>010.1181</p> <p></p>	<p><b>Connection Module Holder, Global/u</b></p> <p>Accommodates:</p> <ul style="list-style-type: none"> <li>– 4 unshielded RJ45 connection modules.</li> <li>– 4 SC-RJ Adaptors.</li> </ul> <p>Includes labelling strip and installation instructions.</p>	1	R35403
 <p>010.1180</p> <p></p>	<p><b>Blind Cover, Global</b></p> <p>For installation in 19" 3U Global patch panels, shielded and unshielded.</p> <p>Same installation size as connection module holders, Global/s and Global/u.</p> <p>Technical data:</p> <p>Material: polycarbonate.</p> <p>Halogen-free according to DIN/VDE 0472/815.</p> <p>Fire classification: UL94V-0.</p> <p>Colour: light grey/NCS 1005-R80B.</p>	1	R35401
 <p>010.1633</p> <p></p>	<p><b>1/2 Blind Cover, Global</b></p> <p>For installation in 19" 3U Global patch panels, shielded and unshielded.</p> <p>To cover half an element when adapter frames (installation size = 2 1/2 widths units of connection module holder) or an uneven number of adapter frames in the Global patch panel are used.</p>	1	R302149

Matching Modules			Matching Accessories				
Connection Modules s/u Cat. 5e and Cat. 6	FO Adaptors SC-RJ		Hinged Dust Covers	RJ45 Keying System "Data Safe Lock"	Plug Line	Splash Protective Line	Labelling Sheet
 <p>010.1624</p> <p>010.1623</p>	 <p>020.0700</p>		 <p>010.1885.1</p>	 <p>010.0962.2</p>	 <p>030.1509</p>	 <p>010.2128.1</p>	 <p>020.0045</p>
Page 30	Page 40		Page 153	Page 154	Page 156	Page 161	Page 60

Ordering Information	Description	Packing Unit	Part Number
<p>010.1179</p>  	<p><b>Adapter Unit, Global</b> Accommodates: – 2 connection module holders R925070. – 1 blind cover R925102. – 1 coax socket holder R300283. – 1 holder D-Sub R23052. Installation size equivalent to 2 1/2 width units of connection module holders, Global. Technical data: Material: polycarbonate, fiber glass reinforced. Halogen-free according to DIN/VDE 0472/815. Fire classification: UL94V-0.</p>	1	R35400
<p>020.1031</p>  	<p><b>Cover Plate for Swivel Unit</b> For installation in Global adapter unit. Includes mounting kit. Material: polycarbonate. Halogen-free according to DIN/VDE 0472/815. Fire classification: UL94V-2.</p>	10	R925102
<p>010.1266</p>  	<p><b>Coax Socket Holder, 2 x 5</b> Accommodates 10 jacks. Includes labelling strips. Tool-free R&amp;M click mounting. Fits R&amp;M adapter frame, Global. Without jacks and plugs. Technical data: Material: polycarbonate. Halogen-free according to DIN/VDE 0472/815. Fire classification: UL94V-0.</p>	1	R300283

 All products in light grey/NCS 1005-R80B.

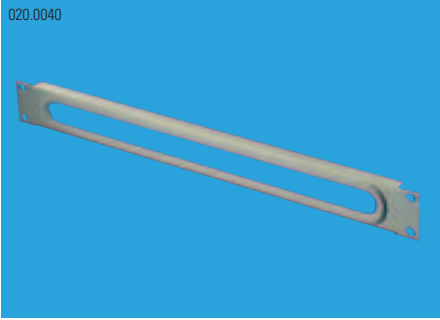
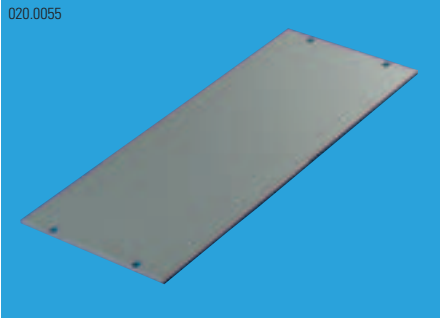
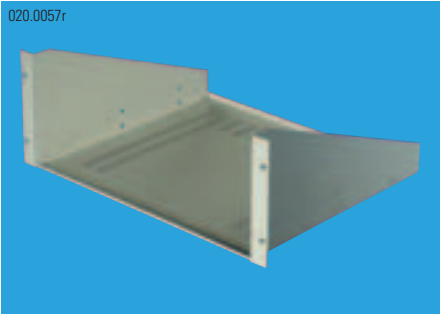
Matching Accessories								
Coax	Labelling Sheet							
<p>020.0202</p> 	<p>020.0045</p> 							
Seite 56	Seite 60							

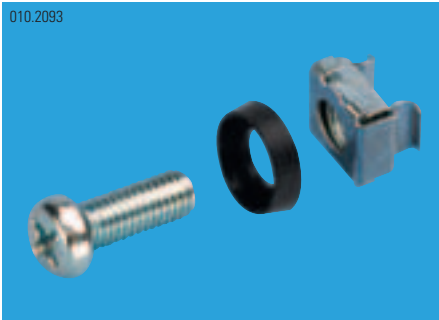
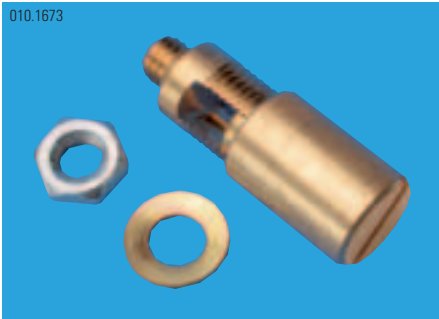
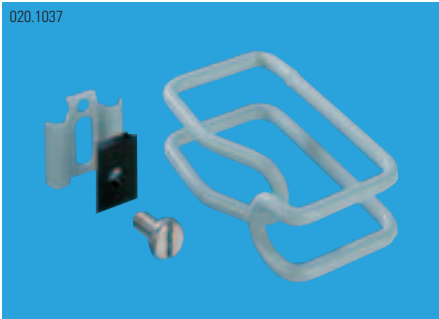
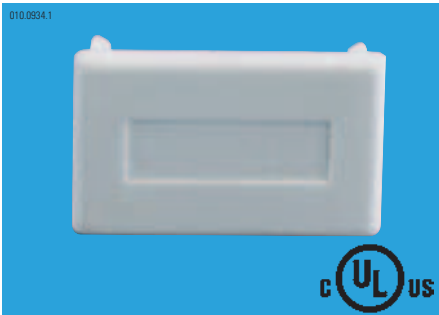
Ordering Information	Description	Packing Unit	Part Number
<div>020.0202</div> <div></div>	<b>BNC Crimp Socket</b> Cable introduction full-crimp for coaxial cables RG 59/BU, RG 62 A/U and RG 71 B/U. Tool-free R&M click mounting.	10	R23002
<div>020.0232</div> <div></div>	<b>Coax Blind Cover</b> For covering one empty sockets position.	10	R23021

Ordering Information	Description	Packing Unit	Part Number
010.2181	<p><b>19" 1U Jumper Plastic Ring Panel</b></p> <p>Plastic plate with four plastic jumpering brackets. Assures neat horizontal arrangement of patch cords between the individual patching fields. Includes mounting kit.</p> <p><b>i</b> New: additional stability and fast mounting thanks to newly developed plastic plate and jumpering brackets.</p>	1	R306179
020.1040	<p><b>19" 1U Jumper Chrome Steel Ring Panel</b></p> <p>Anodised aluminium with four chrome steel jumpering brackets. Assures neat horizontal arrangement of patch cords between the individual patching fields. Includes mounting kit. C-UL-US certified.</p>	1	R924007-01
010.2182	<p><b>19" 2U Jumper Plastic Ring Panel</b></p> <p>Plastic plate with eight jumpering brackets. Assures neat horizontal arrangement of patch cords between the individual patching fields. Includes mounting kit.</p> <p><b>i</b> New: additional stability and fast mounting thanks to newly developed plastic plate and jumpering brackets.</p>	1	R306180
020.1042	<p><b>19" 2U Jumper Chrome Steel Ring Panel</b></p> <p>Anodised aluminium with eight chrome steel jumpering brackets. Assures neat horizontal arrangement of patch cords between the individual patching fields. Includes mounting kit. C-UL-US certified.</p>	1	R924007-02
010.2183	<p><b>Lateral Radius Guard, left and right, for 19" Rack</b></p> <p>The radius guard guarantees the admissible bending radius of copper and fiber glass cables. Mounted at the 19" profiles' front. Supplied:</p> <ul style="list-style-type: none"> <li>– Lateral radius guards, left and right</li> <li>– Velcro fastening</li> </ul> <p>Note:</p> <p>The radius guards work with every position of the lateral 19" mounting frames.</p>	1	R306181

## Accessories

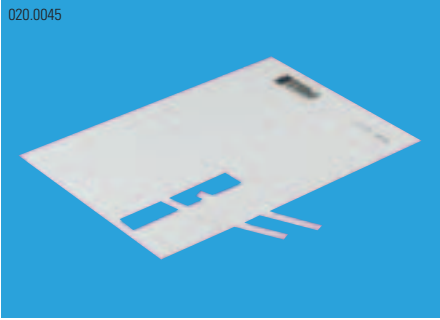
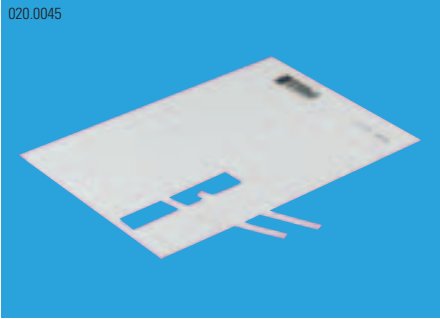
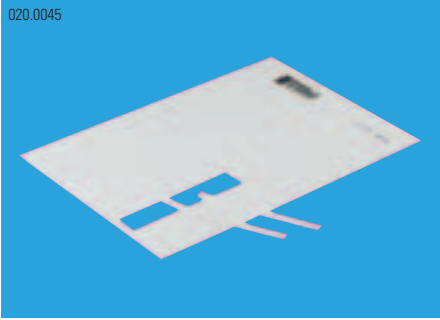

### 19" Patch Panels

Ordering Information	Description	Packing Unit	Part Number
 <p>020.0040</p>	<p><b>Cable Through Guide Panel 1U</b></p> <p>For leading the cables out of the front of the cabinet.</p> <p>The mounting kit must be ordered separately.</p>	1	R25055
 <p>020.0055</p>	<p><b>Blind Plate 19" 1U GVS</b></p>	1	R24031-01
	<p><b>Blind Plate 19" 2U GVS</b></p>	1	R24031-02
	<p><b>Blind Plate 19" 3U GVS</b></p>	1	R24031-03
	<p><b>Blind Plate 19" 4U GVS</b></p> <p>The mounting kit must be ordered separately.</p>	1	R24031-04
 <p>020.0057r</p>	<p><b>Fixed Shelf 19" 3U GVS</b></p> <p>For equipment that is not 19" standard.</p> <p>Features air circulation louvers in the shelf bottom. Includes mounting kit.</p> <p>Depth: 400 mm.</p> <p>Colour: grey/RAL 7032.</p>	1	R24069-03

Ordering Information	Description	Packing Unit	Part Number
 <p>010.2093</p>	<p><b>19" Mounting Kit</b></p> <p>Suitable for installing all types of 19" components. Comprises four M6 cage nuts, four M6 screws, and four plastic collars.</p>	1	R305989
 <p>010.1673</p>	<p><b>Protective Conductor Terminal, 6 mm²</b></p> <p>For the simple and efficient earth connection. Accommodates one stranded cable with a max. cross section of 6 mm². Can be used with all metal patch panels (1U 24 port and voice panel 50 x RJ45) as well as with Global System.</p>	1	R302150
 <p>020.1037</p>	<p><b>Jumping Bracket</b></p> <p>Assures neat vertical arrangement of the patch cords between the individual patching fields. Includes mounting kit.</p>	1	R930114
 <p>010.0934.1</p>	<p><b>Universal Blind Cover, light grey</b></p> <p>For covering one unused empty connection module space. To Snap-In instead of a keying system from smartholes. Colour: light grey/NCS 1005-R80B.</p>	100	R305766

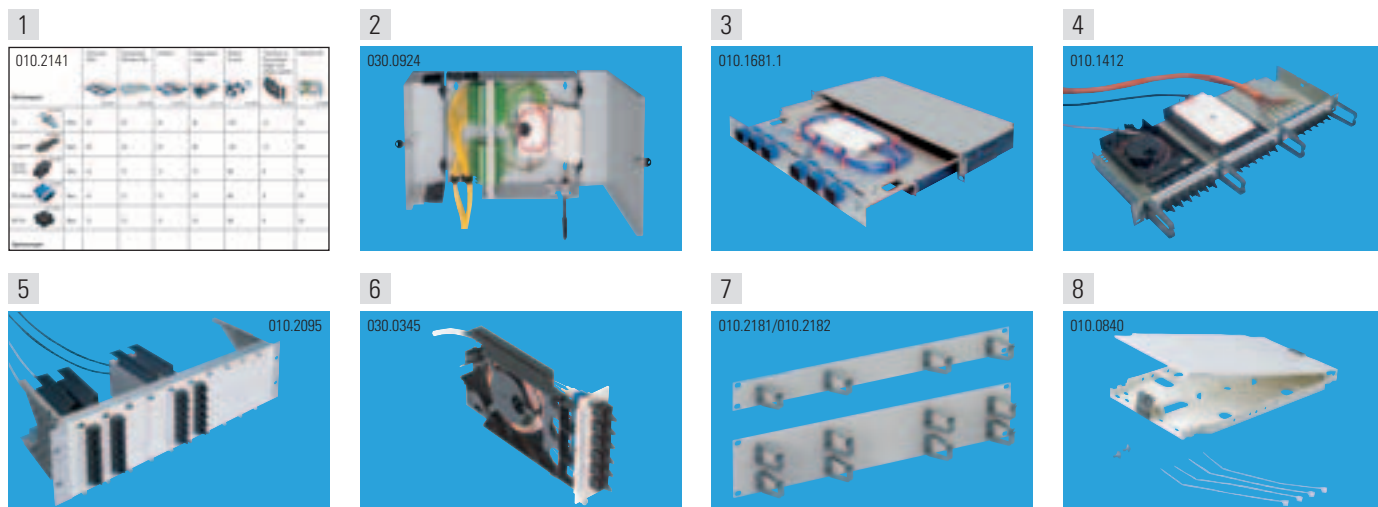
## Accessories 19" Patch Panels

### Laser Printer Labelling Sheets

Ordering Information	Description	Packing Unit	Part Number
020.0045 	<b>16 Port Patch Panel Labelling Sheet</b> For labelling the 16 port patch panels. Suitable for laser printers. Capacity: 48 strips without logo. Dimensions: A4. Material: paper, white, perforated.	1	R306039
020.0045 	<b>24 Port Patch Panel Labelling Sheet</b> For labelling the 24 port patch panels. Suitable for laser printers. Capacity: 54 strips without logo. Dimensions: A4. Material: paper, white, perforated.	1	R305090
020.0045 	<b>Global Patch Panel Labelling Sheet</b> For labelling Global connection module holders. Suitable for laser printers. Capacity: 50 strips without logo. Dimensions: A4. Material: paper, white, perforated.	1	R30871
010.1275 	<b>Labelling Sheet</b> Perforated labelling sheet without logo (unlettered) for the labelling of 28 identification plaques. Allows the printing of the labelling sheet by laser printer.	1	R922067

**i** Labelling software and free MS Word templates for fast and professional patch panel labelling are available on our website ([www.rdm.com](http://www.rdm.com)).



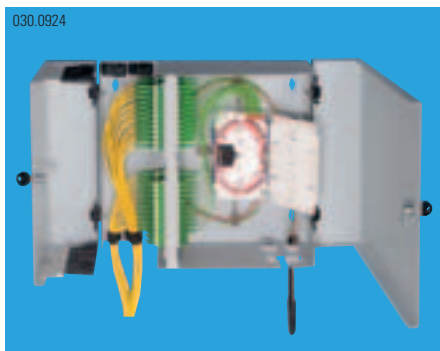


Products	Page
1 Matrix FO Patch Panels/Adaptors/Splice Trays	62
2 FO Floor Distributors	63
3 FO 19" Splice Box/Breakout Box/UniRack/Fibereasy	64
4 FO 1U 19" Sub-Racks	69
5 FO 3U 19" Patch Panels Global System	70
6 FO Fiberliner with Sub-Rack and Global System	71
7 FO Patching Extras	72
8 FO Accessories	73

## FO Patch Panels Matrix

R&M's patch panels are available as 19" racks and wall distributors with a capacity of up to 120 plugs. They are used for the distributing and patching of FO plug connections and for cable-to-cable splicing of the fibers. The patch panels are accommodated in allocated spaces in distributor cabinets and/or in floor distributors. They support different connector types, depending on their front plate equipment.

Plug Types		FiberEasy Rack  010.1682.1	Splice Box/ Breakout Box  010.2294	UniRack  010.1681.1	Sub-Rack  010.1412	Global System  010.2095	Fiberliner to Sub-Rack and Global System  030.0345	FiberCon 48  030.0924
ST  010.0800	Max.	24	24	24	36	120	12	48
E-2000™  030.0640.3	Max.	24	24	24	36	120	12	48
SC-RJ/ LSH-RJ  030.1084	Max.	12	12	12	18	60	6	24
SC Duplex  010.0879	Max.	12	12	12	18	60	6	24
MT-RJ  010.1796.3	Max.	12	12	12	18	60	6	24
<b>Splices</b>								
Splices Trays  030.0128	Max.	3	3	2	—	—	1	8
Fiberliner  030.0345		—	—	—	3	10	—	—
<b>Dimensions</b>								
19" Rack		1U	1U	1U	1U	3U	3U x 8HP	—
Height and with	mm	44 x 482.6	44 x 482.6	44 x 482.6	44 x 482.6	132 x 482.6	129 x 40.4	330 x 405
Depth	mm	230	230	196	196	195	200	100



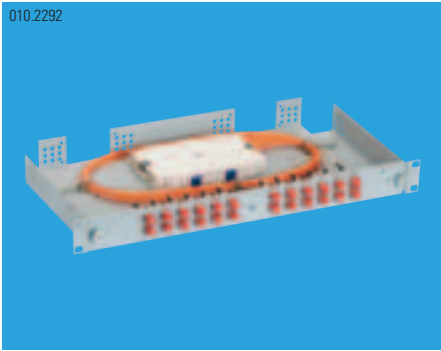
R&M's FiberCon 48 is a typical wall splice distributor where multi-conductor loose tube cables or pre-terminated cables in vertical shafts are split up for tertiary cabling. It features 4 part front plates (48 ports) and/or splice trays for 96 splices. Thanks to its modular design the FiberCon 48 can fully adapt to any given conditions and requirements.

#### Features

- Separate spaces for patching and cables.
- Doors can be individually locked.
- For splices or pre-terminated cables.
- Modular design, easily extended.

Ordering Information	Description	Packing Unit	Part Number
	<p><b>R&amp;M FiberCon 48, empty</b></p> <p>Allows up to 96 FO splices, 48 of which can be led to a patch panel. Can be locked individually, cable and patching spaces are separate. Supplied: Assembled housing incl.</p> <ul style="list-style-type: none"> <li>– Bottom plate to hold splice trays</li> <li>– 2 plastic PG16 screwed closures</li> <li>– 3 cable holders</li> </ul> <p>Dimensions: 330 x 405 x 100 mm Material: sheet steel housing, RAL 7035 (light grey).</p>	1	R300974
	<p><b>Part Front Plate FiberCon 48, 8HP</b></p> <p>Blind plate to cover unused space in the FiberCon 48.</p>	1	R304907

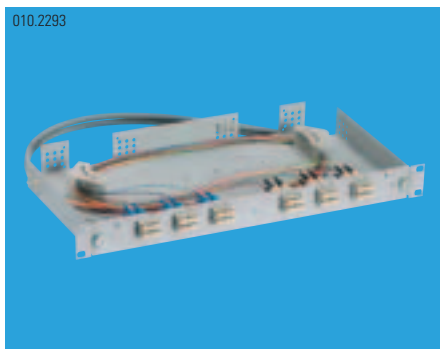
**FO 19" 1U Splice Box  
Fix Rack**



- Features**
- Up to 24 connectors on the same height unit (U).
  - Labelled front plate incl. labelling strips.
  - Loose tube and pigtail reserve within the splice box.
  - Small mounting depth of 230 mm.
  - Wide range of accessories (see page 73).
  - Adaptors with PhBr alignment sleeves.

Ordering Information	Description	Packing Unit	Part Number
	<b>FO 19" 1U Splice Box, equipped (50/62.5 µm)</b> Supplied: <ul style="list-style-type: none"> <li>– 19" 1U splice box including 2 splice trays, fastening material, and instructions</li> <li>– Front plate equipped with MM (PhBr) adaptors and connector pigtails</li> <li>– Without cover (R306775)</li> </ul>		
	<b>12 x type E-2000TM Compact, 50 µm (OM2)</b>	1	R306897
	<b>12 x type E-2000TM Compact, 62.5 µm (OM1)</b>	1	R306896
	<b>24 x type SC, 50 µm (OM2)</b>	1	R306891
	<b>24 x type SC, 62.5 µm (OM1)</b>	1	R306895
	<b>12 x type SC Duplex, 50 µm (OM2)</b>	1	R306894
	<b>12 x type SC Duplex, 62.5 µm (OM1)</b>	1	R306893
	<b>24 x type ST, 50 µm (OM2)</b>	1	R306899
	<b>24 x type ST, 62.5 µm (OM1)</b>	1	R306895

**i** For singlemode versions see FO Products Catalogue R305470. Pigtails 100% tested after mounting. Test protocol included.



#### Features

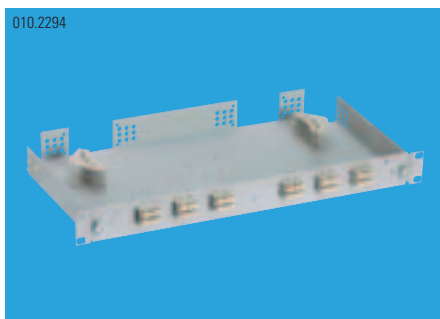
- Up to 24 connectors on the same height unit.
- Labelled front plate incl. labelling strips.
- Fastening options for cabling systems.
- Small mounting depth of 230 mm.
- Wide range of accessories (see page 73).
- Adaptors with PhBr alignment sleeves.

#### Ordering Information

#### Description

#### Packing Unit

#### Part Number



#### FO 19" 1U Breakout Box, equipped (50/62.5 µm)

Supplied:

- 19" 1U Breakout box including fastening material and instructions
- Front plate equipped with MM (PhBr) adaptors:
- Without cover (R306775)

**12 x type E-2000TM Compact, black/orange,  
(50 µm)**

1

R306872

VISIONsystem

**12 x type E-2000TM Compact, black/orange,  
(62.5 µm)**

1

R306873

VISIONsystem

**24 x type SC, beige**

1

R306875

VISIONsystem

**12 x type SC Duplex, beige**

1

R306876

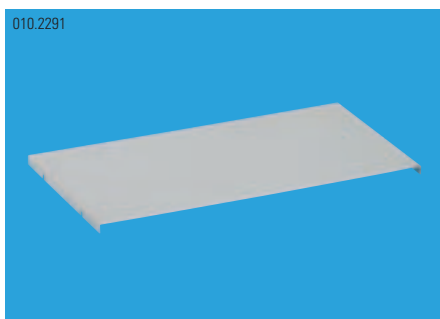
VISIONsystem

**24 x type ST**

1

R306874

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#### FO Cover for 19" 1U Splice Box/ Breakout Box

1

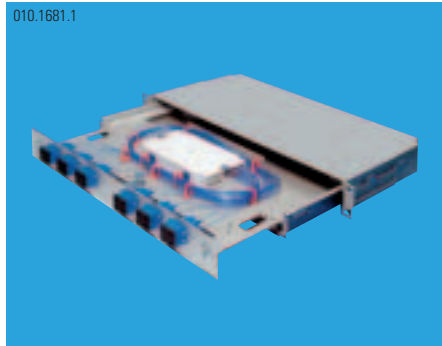
R306775

VISIONsystem

For protection against mechanical damage.  
Can be opened and closed with a screwdriver.

## UniRack 19" Patch Panels Sliding Technique

010.1681.1



### Features

- Strain relief option for cables.
- Cable entry from the rear or from the side.
- Cable and fiber management.
- Up to 24 plug connector sets on one unit.
- Small mounting depth.
- Easy installation.
- Optional: integrated patch guide (cf. page 73).
- Multi- and singlemode capable adaptors.
- Accommodates max. 2 splice trays.
- Labelled front plate.
- Adjustable slide-in unit (0–55 mm).
- Adaptors with zirconia alignment sleeves.
- 3 metres pigtail reserve (1.7 m inside the splice tray).

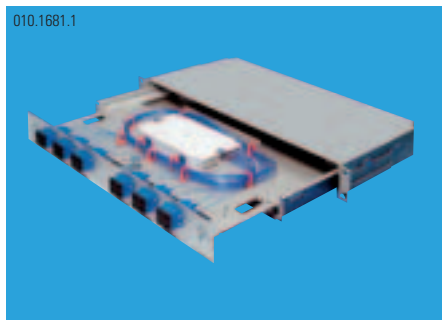
### Ordering Information

### Description

### Packing Unit

### Part Number

010.1681.1



### FO 1U UniRack, assembled

For max. 24 connector sets.

Supplied:

- UniRack assembled incl.
- Splice tray
- Installation instructions
- Fastening material
- Adaptors and connector pigtails

Dimensions (b x h x d): 482.6 x 43.6 x 226 mm.

Front plate: steel.

<b>12 x type E-2000™ Compact, 50 µm (OM2)</b>	1	R306198	<a href="#">VISIONsystem</a>
<b>12 x type E-2000™ Compact, 62.5 µm (OM1)</b>	1	R30396-12-62,5	<a href="#">VISIONsystem</a>
<b>12 x type LSH E-2000™, 50 µm (OM2)</b>	1	R300576	<a href="#">VISIONsystem</a>
<b>12 x type LSH E-2000™, 62.5 µm (OM1)</b>	1	R300472	<a href="#">VISIONsystem</a>
<b>24 x type LSH E-2000™, 50 µm (OM2)</b>	1	R300579	<a href="#">VISIONsystem</a>
<b>24 x type LSH E-2000™, 62.5 µm (OM1)</b>	1	R30398-24-62,5	<a href="#">VISIONsystem</a>
<b>12 x type SC, 62.5 µm (OM1)</b>	1	R30316-12-62,5	<a href="#">VISIONsystem</a>
<b>24 x type SC, 50 µm (OM2)</b>	1	R301992	<a href="#">VISIONsystem</a>
<b>24 x type SC, 62.5 µm (OM1)</b>	1	R30316-24-62,5	<a href="#">VISIONsystem</a>
<b>12 x type SC Duplex, 50 µm (OM2)</b>	1	R300264	<a href="#">VISIONsystem</a>
<b>12 x type SC Duplex, 62.5 µm (OM1)</b>	1	R300265	<a href="#">VISIONsystem</a>
<b>12 x type SC-RJ, 50 µm (OM2)</b>	1	R30399-12-50	<a href="#">VISIONsystem</a>
<b>12 x type SC-RJ, 62.5 µm (OM1)</b>	1	R30399-12-62,5	<a href="#">VISIONsystem</a>
<b>12 x type ST, 50 µm (OM2)</b>	1	R300690	<a href="#">VISIONsystem</a>
<b>12 x type ST, 62.5 µm (OM1)</b>	1	R30317-12-62,5	<a href="#">VISIONsystem</a>
<b>24 x type ST, 50 µm (OM2)</b>	1	R300315	<a href="#">VISIONsystem</a>
<b>24 x type ST, 62.5 µm (OM1)</b>	1	R30317-24-62,5	<a href="#">VISIONsystem</a>



For singlemode versions see FO Products Catalogue R305470. Insertion loss in acc. with EN 186000, § 4.4.7, Method 7. Pigtails 100 % tested after mounting. Test protocol included.



#### Features

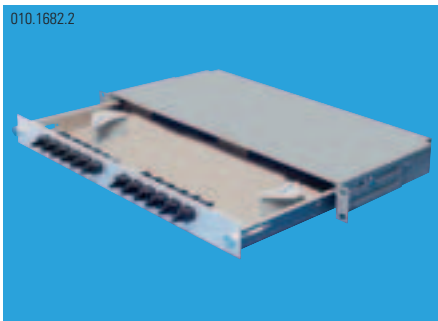
- Up to 24 plug connector sets on one unit.
- Simple patch panel mounting and dismounting
- Small mounting depth of 230 mm.
- Universal insert (e.g. acc. to ETSI standard).
- Cable entry from the rear or from the side.
- Patching guide and strain relief on the same height unit.
- Labelled front plate incl. labelling strips.
- Adjustable slide-in unit (0–55 mm).
- Wide range of accessories (see page 73).
- Customised versions on request.
- Adaptors with zirconia alignment sleeves.

#### Ordering Information

#### Description

#### Packing Unit

#### Part Number



#### FO 19" 1U Fibereasy Rack 24

Supplied:

- 19" 1U sub-rack, installation instructions and mounting kit
- Labelling strips
- Three radius guards 2 x 15 mm
- Front plate equipped with adaptors:

**24 x type E-2000™, 62.5 µm**

1

R303581

VISIONsystem

**12 x type E-2000™ Compact, 50 µm**

1

R306196

VISIONsystem

**12 x type E-2000™ Compact, 62.5 µm**

1

R306197

VISIONsystem

**24 x type E-2000™, 50 µm**

1

R306194

VISIONsystem

**24 x type SC, blue**

1

R304360

VISIONsystem

**12 x type SC-RJ**

1

R30693-12

VISIONsystem

**12 x type SC Duplex II**

1

R30692-12

VISIONsystem

**24 x type ST**

1

R30691-12

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**24 x type ST**

1

R30691-24

VISIONsystem

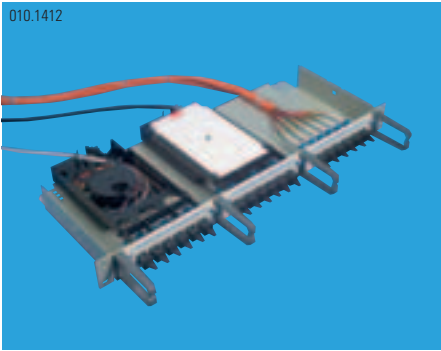
**12 x type MT-RJ**

1

R303580

VISIONsystem

19" FO Sub-Racks  
Fix Rack



On the R&M 19" Sub-Rack maximally 36 fibers can be terminated on any given adaptors. Installation is simple and efficient. Furthermore, jumpering bracket sets are integrated.

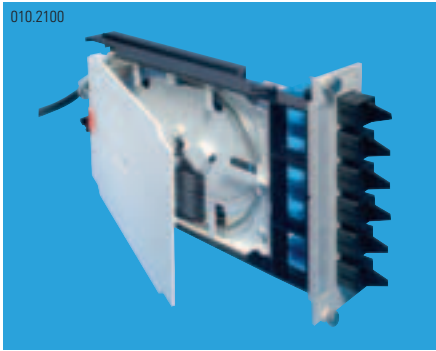
Features

- Strain relief of cables possible.
- Cable entry from the rear.
- Cable and fiber management.
- Up to 36 connector sets on 1U.
- Small mounting depth.
- Easy installation.

Ordering Information	Description	Packing Unit	Part Number
010.1267	<b>1U Sub-Rack</b> Allows the mounting of max. 3 Fiberliner pre. or spl. or max. 3 splice trays with 8HP adaptor holders. Supplied: <ul style="list-style-type: none"><li>– Rack</li><li>– 4 jumpering bracket sets</li><li>– 1 fastening kit</li></ul> Dimensions (b x h x d): 482.6 x 43.6 x 195.7 mm. Material: sheet steel, median grey/NCS 2502-B.	1	R30872
030.0298	<b>Cover to 1U Sub-Rack</b> For protection against any mechanical influence. No tools required to open and close it. Material: anodised aluminium.	1	R30873

For accessories please see page 73.





#### Features

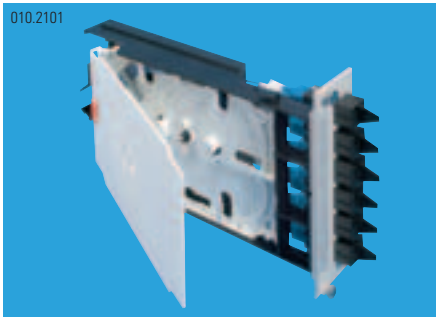
- Up to 12 FO ports per 8HP splice version.
- Up to 120 optical terminations per 19" 3U Global patch panel.
- Choice of cable entry at 45° or 90°.
- Strain relief for different installation cables.
- Fits into R&M FO 19" 1U and 3U patch panels.
- Simple individual pigtail tightening or replacing.
- Wide range of accessories (see page 73).
- Adaptors PhBr or zirconia ceramic alignment sleeves.

#### Ordering Information

#### Description

#### Packing Unit

#### Part Number



#### FO 19" 3U 8HP Fiberliner, equipped

Supplied:

- 19" 1U Sub-Rack
- Splice tray
- Fastening material
- Front plate equipped with adaptors and pigtails:

Front plate: PC, light grey/NCS 1005-R80B

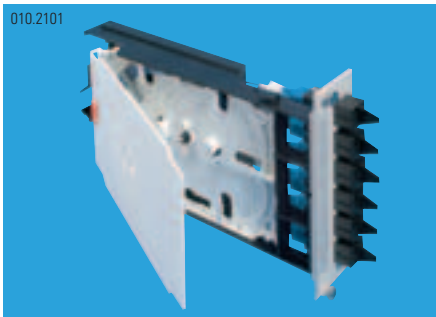
#### Splice version PhBr

- 6 x type E-2000™ Compact, 50 µm (OM2)
- 6 x type E-2000™ Compact, 62.5 µm (OM1)
- 6 x type SC-RJ, 50 µm (OM2)
- 6 x type SC-RJ, 62.5 µm (OM1)
- 6 x type SC Duplex, 50 µm (OM2)
- 6 x type SC Duplex, 62.5 µm (OM1)
- 12 x type ST, 50 µm (OM2)
- 12 x type ST, 62.5 µm (OM1)

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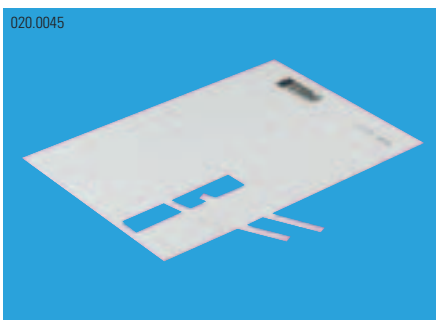
#### Splice version zirconia ceramic

- 12 x type E-2000™, 50 µm (OM2)
- 12 x type E-2000™, 62.5 µm (OM1)
- 6 x type E-2000™ Compact, 50 µm (OM2)
- 6 x type E-2000™ Compact, 62.5 µm
- 12 x type SC, 62.5 µm (OM1)
- 6 x type SC-RJ, 62.5 µm (OM1)
- 6 x type SC Duplex, 62.5 µm (OM1)
- 6 x type SC Duplex, 50 µm (OM2)
- 12 x type ST, 62.5 µm (OM1)
- 12 x type ST, 50 µm (OM2)

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#### Labelling Sheet Fiberliner

For labelling the front panels of 19" slide-in units.  
Suitable for labelling with laser printer.  
Capacity: 50 strips without logo.  
Dimensions: A4.  
Material: paper white, perforated.

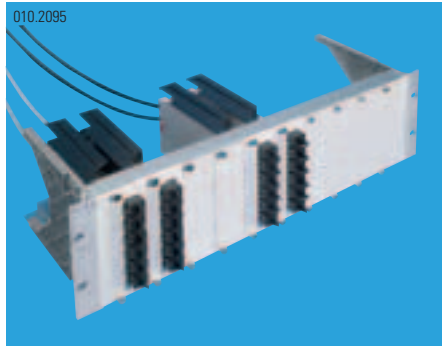
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R30871

VISIONsystem

**i** Labelling software and free MS Word templates for fast and professional patch panel labelling are available on our website ([www.rdm.com](http://www.rdm.com)).

## 19" FO Patch Panels 3U Global System



The R&M 19" 3U patch panels allow a termination of max. 120 fibers on any given adaptors. Termination is simple and efficient, carried out with the Fiberliner.

With the R&M 19" 3U patch panel for copper applications hybrid solutions are also possible, i.e. copper and fiber optics in one rack by means of the 3U adapter housing for the Fiberliner. For a homogeneous construction it takes an even number of adapter housings. SC-RJ adaptors can also be inserted directly into the connection module holder.

### Features

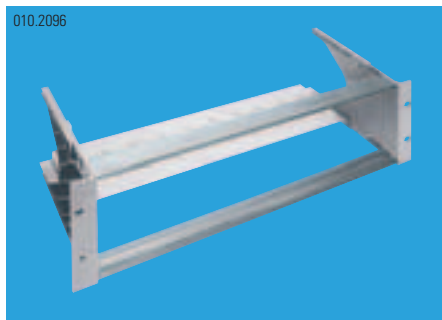
- Modular construction.
- Backwards compatible with R&M 3U standard components.
- Easy installation and maintenance thanks to a new locking system.
- Fast and tool-free installation.
- Exchangeable labelling strips.
- Integrated cable tie shelf.

### Ordering Information

### Description

### Packing Unit

### Part Number



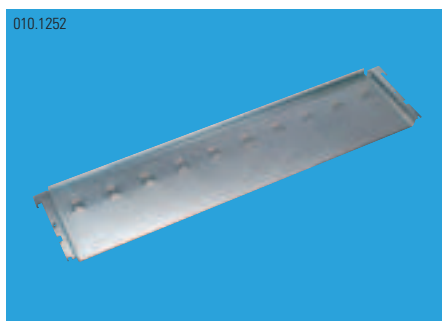
#### 19" 3U FO Global Patch Panel

Accommodates 10 Fiberliner 19" rack insertions.  
Capacity: 120 FO ports.  
Dimensions: 3U, 84 HP.  
19" 3U FO Global Patch Panel incl. insertion guide and fastening kit.

1

R31023

VISIONsystem



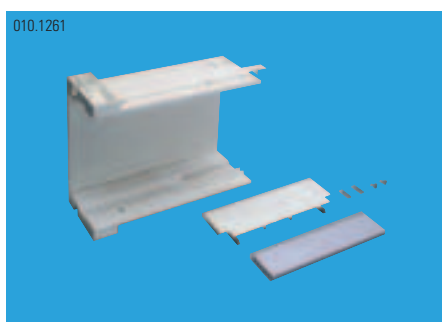
#### FO Holder for Global Patch Panel

Additional FO holder for the top insertion guide.

1

R31024

VISIONsystem



#### 19" 3U Adapter Housing

Allows the integration of Fiberliner insertions in the copper Global patch panels:  
19" 3U Global Patch Panel/s (R35408) and 19" 3U Global Patch Panel/u (R35409).  
See page 53.  
Dimensions: 3U, 14 HP.  
Colour: white/RAL 9010.  
Halogen capability (acc. to DIN/VDE 0472/815)

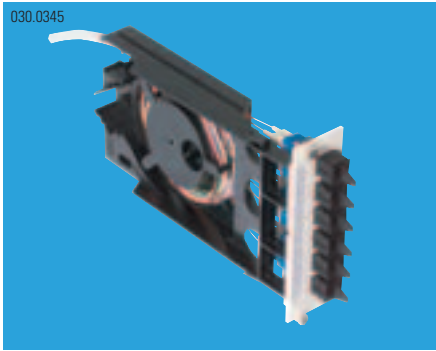
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R30870

VISIONsystem



For accessories please see page 73.



#### Features

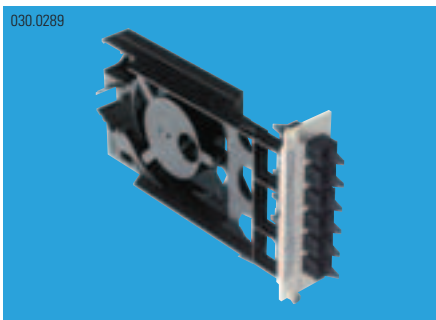
- Up to 12 connectors per 8HP breakout version.
- Up to 120 fibers per 19" 3U Global patch panel.
- Choice of cable entry at 45° or 90°.
- Strain relief for different installation cables.
- Fits into R&M FO 19" 1U and 3U patch panels.
- Simple individual pigtail tightening or replacing.
- Wide range of accessories (see page 73).
- Adaptors PhBr alignment or zirconia ceramic alignment sleeves.

#### Ordering Information

#### Description

#### Packing Unit

#### Part Number



#### FO 19", equipped

Supplied:

- 19" 1U slide-in unit
- Fastening material
- Front plate equipped with FO adaptors
- Adaptor PhBr

**6 x type E-2000™ Compact, 50 µm**

1

R306959

VISIONsystem

**6 x type E-2000™ Compact, 62.5 µm**

1

R306960

VISIONsystem

**12 x type SC**

1

R306918

VISIONsystem

**6 x type SC-RJ, MM**

1

R306958

VISIONsystem

**6 x type SC Duplex, MM**

1

R306957

VISIONsystem

**12 x type ST, MM**

1

R306961

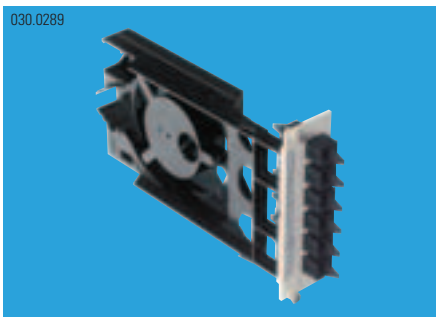
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**12 x type MT-RJ**

1

R303568

VISIONsystem



#### FO 19", equipped

Supplied:

- 19" 1U slide-in unit
- Fastening material
- Front plate equipped with FO adaptors
- Adaptor zirconia ceramic

**12 x type E-2000™, 50 µm**

1

R306202

VISIONsystem

**12 x type E-2000™, 62.5 µm**

1

R303563

VISIONsystem

**6 x type E-2000™ Compact, 50 µm**

1

R306214

VISIONsystem

**6 x type E-2000™ Compact, 62.5 µm**

1

R306215

VISIONsystem

**12 x type SC**

1

R30864

VISIONsystem

**6 x type SC-RJ**

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R30867

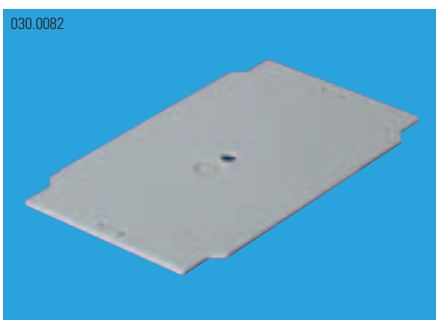
VISIONsystem

**12 x type ST**

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R30863

VISIONsystem



#### Cover to 19" Fiberliner pre

1

R30278

VISIONsystem

To protect wires from mechanical damage in the 19" slide-in unit.

Dimensions: 155 x 92 x 2 mm.









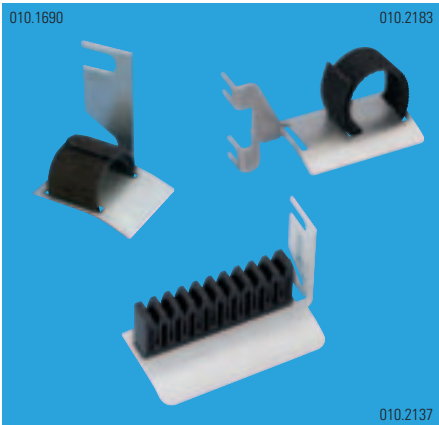



Material: ABS, white.

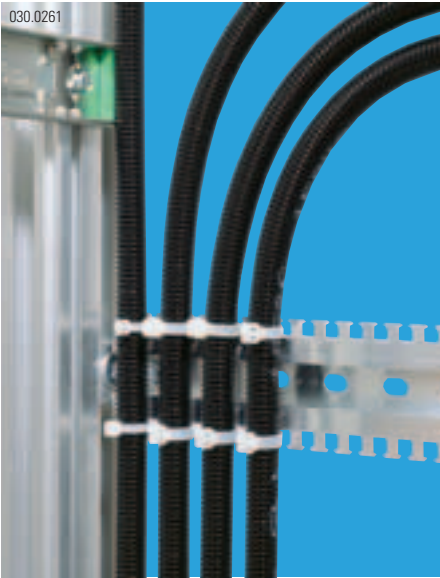
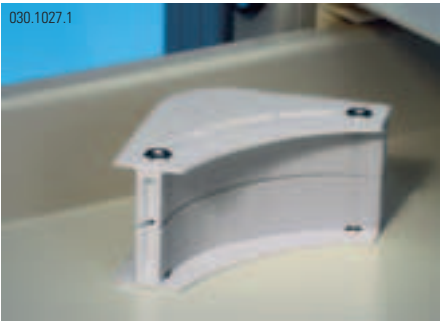
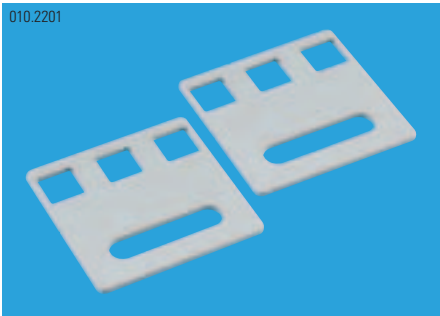
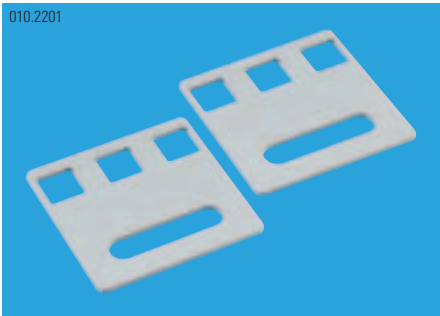
#### Overlengths of the pre- or field-terminated breakout cables







Number of fibers	Cable diameter	Cable length in [mm]	Corresponds to rotations	Cable hold-down plates to knock-out
12	≤ 1 mm	420 – 1500	1 – 4	No
12	1 – 2 mm	420 – 750	1 – 2	Yes
12	2 – 3 mm	420 – 450	1	Yes


## 19" Patching Extras

Ordering Information	Description	Packing Unit	Part Number
010.2181	<b>19" 1U Jumper Plastic Ring Panel</b> Plastic plate with four plastic jumpering brackets. Assures neat horizontal arrangement of patch cords between the individual patching fields. Includes mounting kit.	1	R306179
010.2182	<b>19" 2U Jumper Plastic Ring Panel</b> Plastic plate with eight jumpering brackets. Assures neat horizontal arrangement of patch cords between the individual patching fields. Includes mounting kit.	1	R306180
010.1964	<b>19" 1U Contact Drawer II</b> For storing loose tube reserve. Dimensions: 482.6 x 230 x 43.6 mm. Material: powder-coated sheet steel. Supplied: <ul style="list-style-type: none"> <li>– Fully mounted, incl. fastening material.</li> <li>– Without FO baffle guide.</li> </ul>	1	R305374
010.1963	<b>19" 1U Patch Cable Tray III</b> Patch cable deposit on one height unit to store spare patch cable. One patch cable tray accommodates 50 m of patch cable. Supplied: <ul style="list-style-type: none"> <li>– Fully mounted, incl. fastening material</li> <li>– Without radius guard</li> </ul> Dimensions: 482.6 x 230 x 43.6 mm.	1	R305758
010.2311	<b>Baffle Guide</b> For protected patch cable guiding. For the 19" 1U patch cable guide, left and right (R305374). Material: ABS/PC.		
	<b>Baffle Guide, right</b>	1	R30125
	<b>Baffle Guide, left</b>	1	R30126



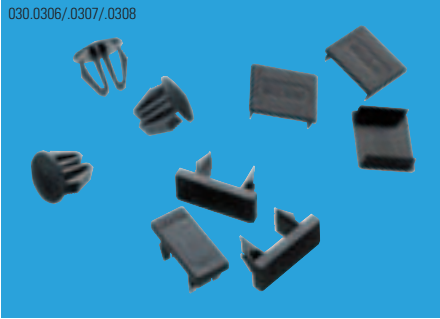






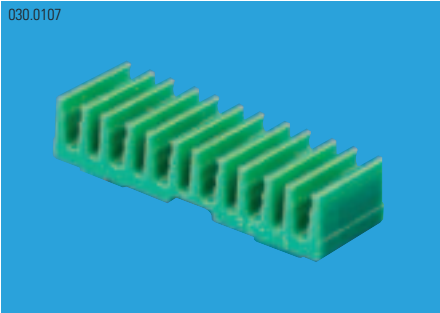

Ordering Information	Description	Packing Unit	Part Number
 030.1021.1	<b>Rear Cable Guide II to 19" 1U and 2U UniRack</b> The rear cable guide is an additional guide for the FO cable or the flex hose. Supplied: – 1 cable guide – Mounting accessories Material: aluminium 1.5 mm	1	R302058 
 030.1023.1	<b>Rear Cable Entry with PG 16 Screwing</b> The rear cable entry is an additional relief on the FO cable or the flex hose. Supplied: – 1 cable entry – 1 PG 16 screwing – Mounting accessories Material: aluminium 1.5 mm	1	R302006 
 010.1689	<b>Cable Guide II 75 mm for 19" Rack</b> For horizontal guiding of the patch cords. To be mounted directly at the FO rack.  Supplied with version 1: – Cable guide – Velcro strips 600 mm		
	<b>Cable Guide II, depth 75 mm</b>	1	R30315 
	<b>Cable Guide, depth 110 mm</b>	1	R302003 
	Supplied with version 2: – Cable guide – 4 strain relief elastics		
	<b>Cable Guide, depth 110 mm</b>	1	R304439 
	Only applicable when the 19" patch panels are not set back.		
 010.1690 010.2183	<b>Patching Ring, left and right, for 19" Rack</b> The patching ring protects the admissible bending radius of the fiber glass cable. The cable is mounted at the front of the 19" profiles. Supplied: – Patching rings left and right		
	<b>Velcro fastening 200 mm, depth 35 mm</b>	1	R302004 
	<b>Velcro fastening 400 mm, depth 75 mm</b>	1	R306181 
	<b>Strain relief elastics, depth 75 mm</b>	1	R304440 
	Note: The patching rings work with every position of the lateral 19" mounting frames.		

Ordering Information	Description	Packing Unit	Part Number
 <p>030.0261</p>	<p><b>Cable Guide Set NW 10 mm</b> For protected guiding of up to 4 loose tubes. Supplied: – 1 flex hose, NW = 10 mm, l = 3 m – Fastening material. Material: PA 12.</p>	1	R30892 <span>VISIONsystem</span>
 <p>030.1027.1</p>	<p><b>Cable Guide Set NW 17 mm</b> For protected guiding of up to 10 loose tubes of the 2U UniRacks. Supplied: – 1 flex hose, NW = 17 mm, l = 3 m – Fastening material. Material: PA 12.</p> <p>Note: R30059-17 can not be used in lateral mounting with 1U UniRacks and AirRacks.</p>	1	R30059-17 <span>VISIONsystem</span>
 <p>010.2201</p>	<p><b>Radius Guard 2 x 15 mm for Patch Cable Tray II</b> Additional patch cable guide in patch cable tray. Supplied: – 2 x 15 mm radius guard incl. fastening material. Material: ABS. Dimensions: 50 x 50 x 15 mm, radius 45°/90°.</p> <p>Note: One patch cable tray allows a maximum of five 2 x 5 mm radius guards.</p>	1	R302007 <span>VISIONsystem</span>
 <p>010.2201</p>	<p><b>FO 21" Adapter Set for 19" 1U Versions</b> These adapters allow the mounting of 19" units into metrical profile rails (535 mm). Supplied: – Two 21" adapters. – Fastening material. Material: sheet steel, 1.5 mm Colour: powder-coated, median grey, NCS 2502-B</p>	1	R305148

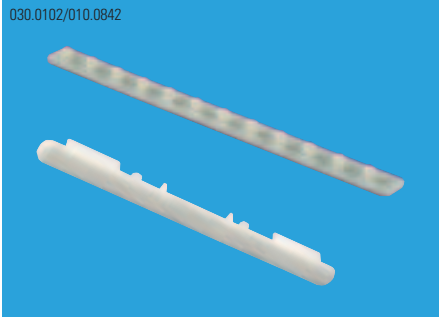

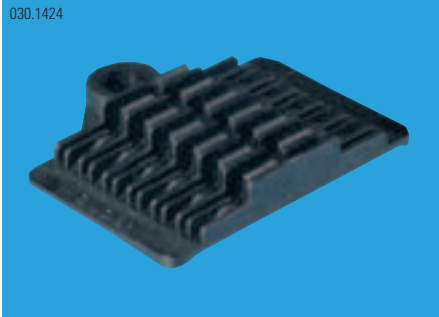





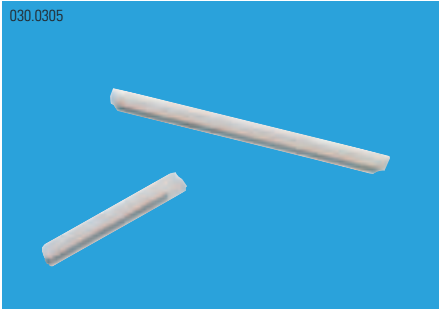


Ordering Information	Description	Packing Unit	Part Number
010.0840	<b>Splice Tray, Basic Set</b> To splice and store the first 12 FO terminations. Supplied: – 1 splice tray – 1 cover to splice tray – 2 film hinges for cover – 4 cable ties – 2 screws for splice holder Dimensions: 155 x 92 x 8 mm. Material: ABS, white.	1	R30393 
010.0841	<b>Splice Tray, Additional Set</b> Allow modular stacking of 12 additional FO terminations each. Supplied: – 1 splice tray – 2 film hinges, small, for stacking – 4 cable ties – 2 screws for splice holder Dimensions: 155 x 92 x 8 mm. Material: ABS, white.	1	R30394 
010.2094.1	<b>8HP Adaptor Holder</b> For 6 x SC-RJ/E-2000™ Compact For 12 x E-2000™/SC/MT-RJ For 12 x ST/FC-PC (Adaptor holder for SC Duplex available on request). Material: PC.	1 1 1	R300542  R300541  R300543 
030.0011	<b>Part Front Plate, 19" 3U/8HP</b> Blind plate to cover unused space on the patch panel. Dimensions: 128.4 x 40.3 x 2.5 mm. Material: anodised aluminium.	1	R30055-3-8 




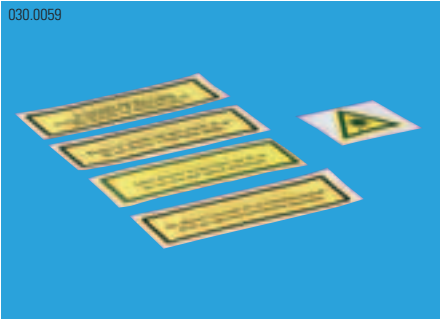

 The 8HP Adaptor Holder allows the mounting of 6 x type MT-RJ.



Ordering Information	Description	Packing Unit	Part Number
 <p>030.0925</p>	<b>Strain Relief tape</b> For the strain relief of the patch cables. Velcro fastener band to be cut in 4 identical pieces. Length: 500 mm.	1	R301569 
 <p>030.0306/0307/0308</p>	<b>Dummy Plugs</b> To cover unused fastening openings.		
	<b>Dummy Plugs E-2000™/SC/MT-RJ</b>	12	R30004-20 
	<b>Dummy Plugs ST/FC-PC</b>	12	R30841 
	<b>Dummy Plugs SC-RJ, E-2000™ Compact</b>	12	R30842 
	<b>Dummy Plugs SC Duplex</b>	12	R30843 
 <p>030.0104.1</p>	<b>Strain Relief 0.9 mm</b> For the strain relief of 12 FO single fibers $\varnothing 0.9 - 1.1$ mm. To snap onto splice tray, no tools needed. Dimensions: 30 x 6 x 7.5 mm without tools. Material: macrolon, red.	10	R30203 
 <p>030.0107</p>	<b>Strain Relief 2.1 mm</b> For the strain relief of 6 FO single cables $\varnothing 2.1$ mm ( $\varnothing 1.9 - 2.1$ mm). To snap onto splice tray, no tools needed. Dimensions: 25 x 8 x 7.5 mm. Material: macrolon, green.	10	R30204 



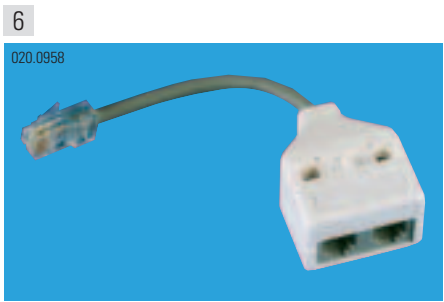
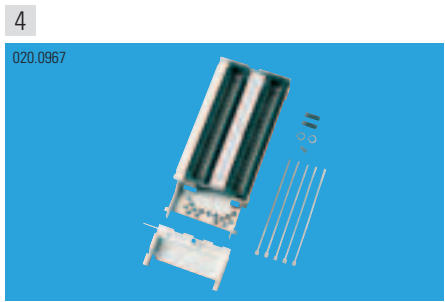
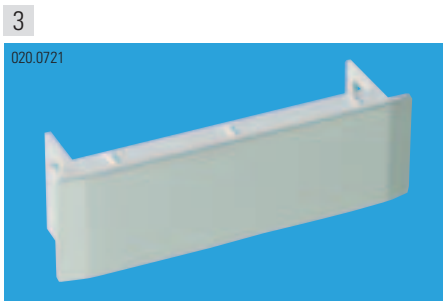
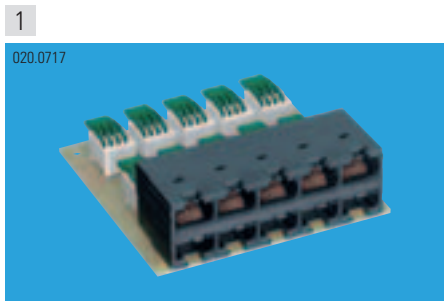
Ordering Information	Description	Packing Unit	Part Number
 <p>030.0102/010.0842</p>	<p><b>Module Fixing Strap</b> To fix max. 12 splice trays stacked on top of each other. Dimensions: 100 x 8 x 5 mm.</p> <p><b>Labelling Strip to Splice Tray</b> To label the individual splice trays. Dimensions: 75 x 7 x 5 mm.</p>	10	R30247 
 <p>030.1424</p>	<p><b>Splice Holder ANT</b> To hold max. 12 ANT splice protections. Supplied: – Splice holder – Fastening screw M3 and plastic screw. Dimensions: 40 x 33 x 5 mm. Material: macrolon, black.</p>	1	R30255 
 <p>030.0094</p>	<p><b>Splice Protection ANT</b> Crimp splice protection for single fibers. Dimensions: 1.2 x 3.2 x 30 mm. Material: sheet plate, inside coated with permanently elastic material.</p>	30	R30086 
 <p>030.0096.1</p>	<p><b>Splice Holder Fujikura</b> To hold max. 6 shrink splice protections. Supplied: – Splice holder – Fastening screw M3 and plastic screw. Dimensions: 27 x 37 x 5 mm. Material: POM, black.</p>	1	R30039-06 
 <p>030.0305</p>	<p><b>Splice Protection Fujikura FP-3M</b> For single fibers.</p> <p><b>Dimensions: diameter 3 x 65 mm</b> Shrinking tube with metal insert.</p> <p><b>Dimensions: diameter 3 x 35 mm</b> Shrinking tube with metal insert.</p>	10	R30087 
		10	R30087-35 

Ordering Information	Description	Packing Unit	Part Number
 <p>030.1425</p>	<b>Splice Holder 3M</b> To hold max. 6 3M Fibrlok splice connections. Supplied: – Splice holder – Fastening screw M3 and plastic screw. Dimensions: 44 x 37 x 5 mm.	1	R30042 <small>VISIONsystem</small>
 <p>030.0099</p>	<b>Splice Connector 3M</b> Mechanical FO splice connector for 250 µm (acrylate) up to 900 µm pigtail (tight tube). Dimensions: 38.1 x 3.8 x 8.4 mm. Material: plastic, black.	6	R30089 <small>VISIONsystem</small>
 <p>010.1952</p>	<b>Mounting Plate for 3M Fibrlok</b> Mounting tool for Fibrlok Splice Connectors 3M.	1	R304873 <small>VISIONsystem</small>
 <p>030.0059</p>	<b>Warning Sign Set</b> To stick onto FO pigtail cover. Supplied: – 2 laser signets, large and small – 1 warning sign German – 1 warning sign Italian – 1 warning sign English Dimensions: 84 x 26 x 0.2 mm. Material: plastic, adhesive, yellow/black.	1	R30021 <small>VISIONsystem</small>
 <p>010.1260</p>	<b>Fan Out Kit</b> To fan out max. 12 fibers of 0.25 mm. Supplied: – 1 splice tray – Cover to splice tray – Plug-in hinges – Fan out elements – Cable ties	1	R300266 <small>VISIONsystem</small>

Voice Integration

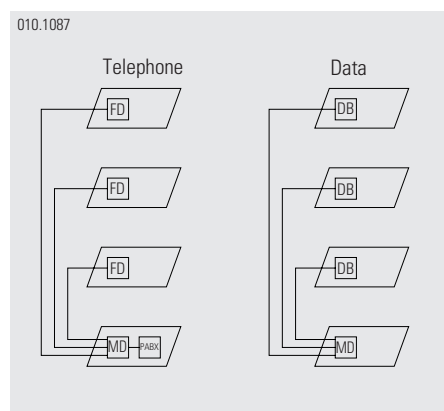
For voice and data needs, copper-based generic cabling links the network connection points with the floor distributor.

In the backbone area, linking the individual floor distributors with the building distributor, data are transmitted over optical fiber while copper cables are used for voice applications.



Products	Page
1 19" RJ45 Voice Panel	81
2 PBX Connection Modules	83
3 19" RJ45 Voice Panel Accessories	87
4 SRV	88
5 ISDN	93
6 Telephony Adapter	99

## Voice Integration Introduction



Functional schematic diagram of voice and data networks in a building.

The separate worlds of voice and data transmission are increasingly growing together. Modern private automated branch exchanges (PABX), for example, offer ISDN capability not only on the exchange side but also internally which means that computers with ISDN boards can be operated as PABX extensions. This means that in the future in-house telephone networks will develop into multi-functional systems in which voice, data and video signals can be transmitted. However, in-house telephone networks are not suitable for transferring large quantities of data at high bit rates. For this reason in-house telephone and data networks will continue to exist side-by-side in the coming years.

In the telephone cabling of a building multi-conductor branch cables are run in a star-shaped configuration from the main distributor (MD) to the distribution boxes (DB). There the DBs are installed together with the data cable patch panels in the floor distributor (FD) cabinets.

The floor distributors as well as the patch panels are the interface to horizontal voice and data cabling within the floors. At this transition point there are many possibilities for combining the two separate cabling systems into a common, application-independent cabling system.

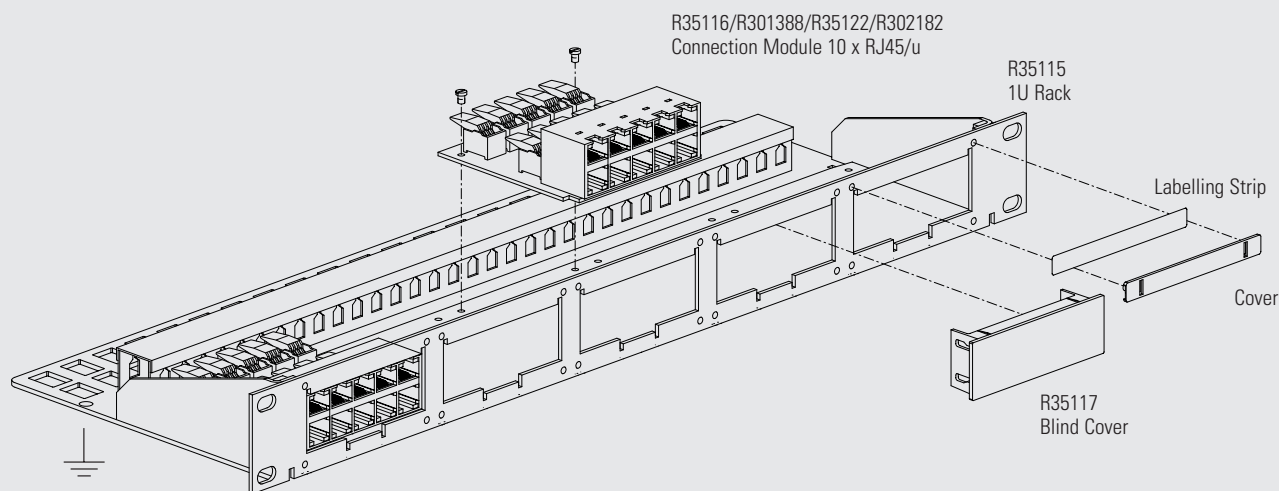
In the following pages we introduce two different possibilities how you can easily, and economically, implement the voice integration between your secondary telephone and tertiary communications

The voice panel for flexible and efficient telephone cabling is a compact, clear interface for your telephone wires. Due to 19" technique you can integrate it and optimise it into a generic cabling system. The voice panel provides up to 100 pairs connectivity for digital and analogue telephony. Because of its modular design and unique labelling system you can easily integrate the voice panel into a generic cabling system.

#### Features

- 19" 1U Voice Panel with modular design and up to 50 RJ45/u ports.
- Category 3 performance in conformance with EIA/TIA 568A, EN 50173 and ISO/IEC 11801.
- Tool-free "Easy Lock" IDC connection technique for installation cables with conductor diameters 0.25 mm – 0.65 mm (AWG 30-22). Strands = AWG 26/7 – 24/7. Admissible Insulation  $\varnothing$  0.7–1.6.
- Labelling holders with exchangeable labelling strips.
- Duct for optimum cable management.
- Ready for earth connection.
- Suitable for multipair cable.

010.1086

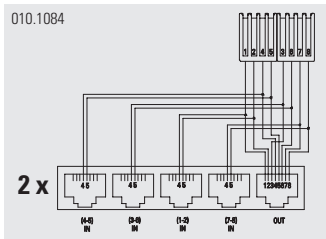


#### Technical Data Connection Module 10 x RJ45/u (R35116)

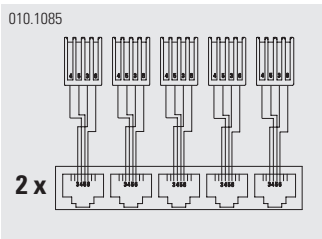
Temperature range in operation	– 10 °C to + 55 °C
NEXT	> 34 dB/16 MHz
Attenuation	< 0.1 dB/16 MHz
Dielectric strength	> 1000 V AC <sub>eff</sub>
Insulating resistance	> 500 M $\Omega$

Voice Integration  
19" RJ45 Voice Panel

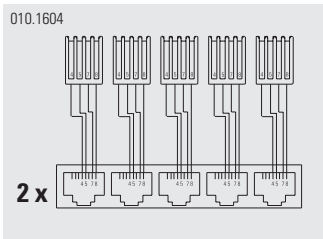
Wiring diagram 1



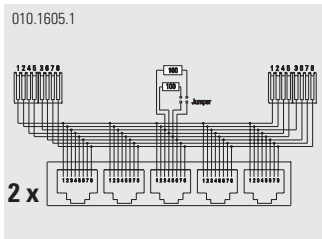
Wiring diagram 2



Wiring diagram 3



Wiring diagram 4

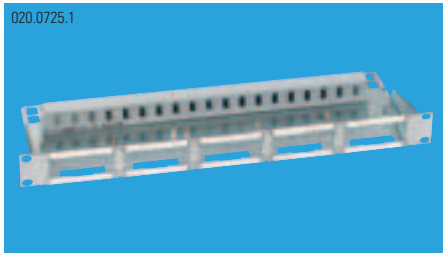


Ordering Information

Description

Packing Unit

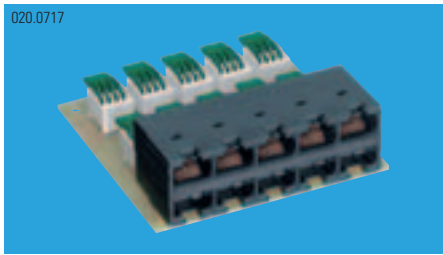
Part Number



**19" 1U Rack, empty**  
Accommodates up to five connection modules  
10 x RJ45/u.  
Includes mounting and labelling kit.  
Overall dimensions: 1U, 84HP.  
Finish: grey, powder-coated.

1

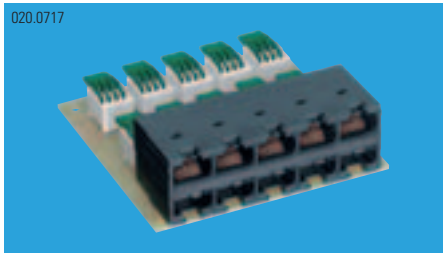
R35115



**Connection Module 10 x RJ45/u (4-5, 3-6)**  
Category 3 connection module with 10 unshielded  
RJ45 ports.  
Tool-free "Easy Lock" connection technique.

1

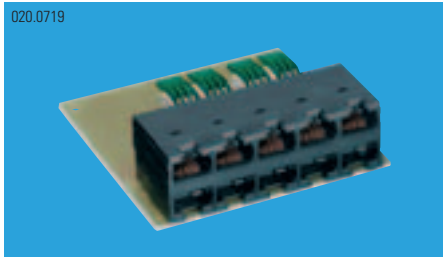
R35116



**Connection Module 10 x RJ45/u (4-5, 7-8)**  
Category 3 connection module with 10 unshielded  
RJ45 ports.  
Tool-free "Easy Lock" connection technique.

1

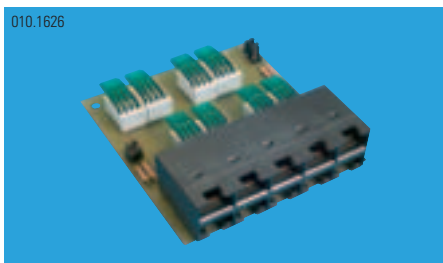
R301388



**Concentrator Module 8 x RJ45/u  
to 2 x RJ45/u**  
Can concentrate up to four 2-conductor terminal  
devices to a RJ45 jack.  
Together with the telephony adapter (R35121) it  
makes full use of all four pairs in a generic cabling  
system.

1

R35122



**Connection Module 10 x RJ45/u ISDN/Bus**  
One module can connect up to 2 ISDN basic  
accesses, providing ISDN services for up to 10  
users at their workstations. Special ISDN outlets  
or termination adapter are no longer required.  
The required S-Bus termination (2 x 100  $\Omega$ ) is  
integrated and can be activated with jumpers.

1

R302182

### Innovative cabling concept for LAN-based PBXs

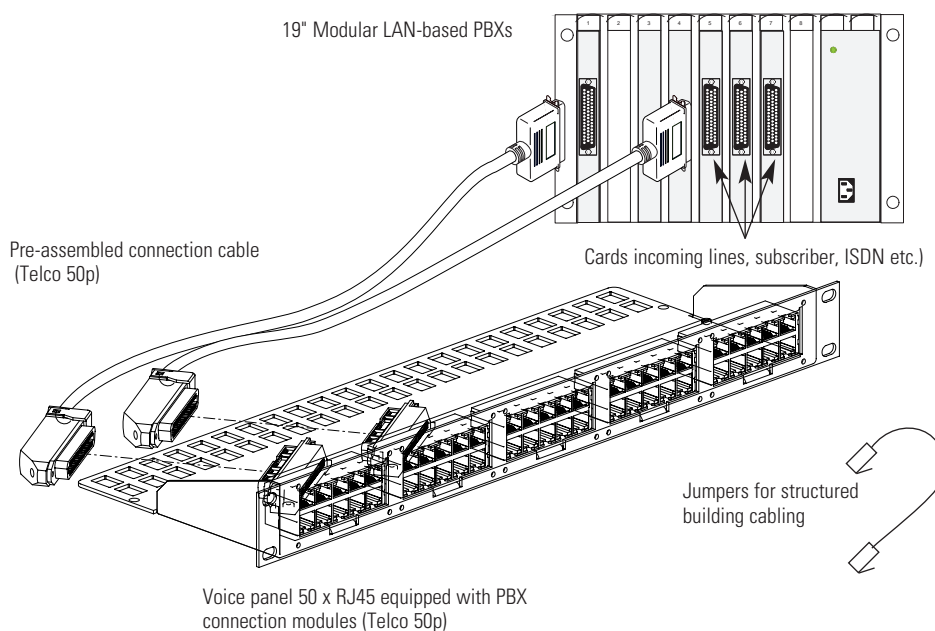
Increasingly, PBX equipment is also offered in 19" technology, with interfaces for LAN connection. In this way, intelligent connections between the PC and the telephone, also known as CTI (Computer Telephony Integration), can be realised. CTI combines the power of a PC with that of the telephone system. In this way, all telephone functions can be controlled via computer. Telephone numbers are dialled directly from the computer or when calls are coming in for example, customer data is automatically loaded from a database. In this way, e-mails, voice mails, or faxes, too, can be processed directly from the PC. A modern PBX with CTI provides significantly improved and more effective communication.

### Optimal integration of the PBX into the structured cabling system

Thanks to 19" integration the PBX is optimally integrated into the structured cabling system. For LAN coupling, in most cases a respective LAN switch is available in close proximity. Passive tertiary cabling too, is located in the same cabinet. The main board or insertion cards of most PBXs feature respective connection modules, for example Telco 50 pole. R&M now offers the respective counterpart on the cabling side. Based on the successful voice panel, with up to 50 x RJ45 on 1U, the R&M range now also includes connection modules suitable for various PBXs. This makes it possible to commission a PBX quickly, simply and without any cabling work, using pre-assembled cables (plug and play).

### Features

- Fast and simple commissioning of the PBX.
- No need for intermediate distributor/main distributor.
- No more expensive cabling work.
- Optimum integration of the PBX in the structured cabling system.
- Cost savings of up to 50% and more when compared to conventional solutions.



030.1505




**PBX** = Private Branch Exchange

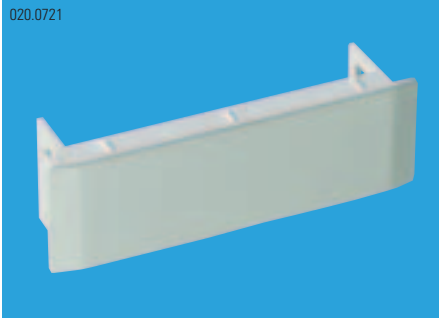
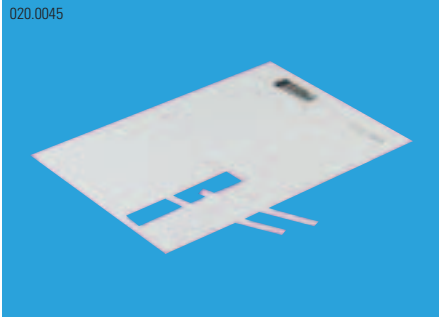

Ordering Information	Description	Packing Unit	Part Number
010.1925.1 	<b>19" 1U Rack, empty for PBX</b> Accommodates five connection modules 8/10 x RJ45. Includes fastening material and labelling kit. Overall dimensions: 1U, 84HP. Finish: grey, powder-coated. <b>Without wiring channel.</b>	1	R305123
010.1966.1 	<b>19" 4U Patch Panel, empty</b> Accommodates ten connection modules 8/10 x RJ45/u. Swivelling, includes fastening material and labelling kit. Overall dimensions: 4U, 84HP. Finish: grey, powder-coated.	1	R304475
010.1919 	<b>Connection Module 8 x RJ45/u</b> With Modu connection. For 2-wire applications. Pin assignment RJ45 4–5.	1	R304742
010.1918 	<b>Connection Module 8 x RJ45/u</b> With two Modu connections. For ISDN base access/T interface. Pin assignment RJ45 4–5/3–6.	1	R304743
	<b>Connection Module, 8 x RJ45/u, switch-selectable</b> With two Modu connections. For ISDN connection S or T interface. Accessible via jumper for each individual RJ45 port.	1	R306103
010.1923 	<b>Special AMP Modu II Connecting Cable</b> With two 16-pole plugs.		
	Length = 2 m	1	R304950
	4 m	1	R306105
	6 m	1	R306104



Ordering Information	Description	Packing Unit	Part Number
010.1925.1 	<b>19" 1U Rack, empty for PBX</b> Accommodates five connection modules 8/10 x RJ45. Includes fastening material and labelling kit. Overall dimensions: 1U, 84HP. Finish: grey, powder-coated. <b>Without wiring channel.</b>	1	R305123
010.1920 	<b>Connection Module 9 x RJ45/u</b> MDECT. Pin assignment RJ45 4–5/3–6.	1	R304670
010.1921 	<b>Connection Module 8 x RJ45/u</b> SILC/ISDN BRA. 4 x T / 4 x S. Pin assignment RJ45 4 – 5 / 3 – 6.	1	R304667
010.1917 	<b>Connection Module 19 x RJ45/u</b> Remote Office 9150.	1	R304671
010.1916 	<b>Connection Module 16 x RJ45/u</b> XFALC/XDLC/XFEM. Pin assignment RJ45 4 – 5.	1	R304668
010.1924 	<b>Connection Module 48 x RJ45/u</b> XDLC. Pin assignment RJ45 4 – 5.	1	R304669
<p><b>i</b> Interconnecting cable PBX-RJ45 connection module can be obtained from the PBX manufacturer.</p>			

Ordering Information	Description	Packing Unit	Part Number
010.1925.1 	<b>19" 1U Rack, empty for PBX</b> Accommodates five connection modules 8/10 x RJ45. Includes fastening material and labelling kit. Overall dimensions: 1U, 84HP. Finish: grey, powder-coated. <b>Without wiring channel.</b>	1	R305123
010.1919 	<b>Connection Module 8 x RJ45/u</b> With Modu connection. For 2-wire applications. Pin assignment RJ45 4–5.	1	R304742
010.1969 	<b>Connection Module 8 x RJ45/u</b> Optional connection of S or T interfaces. Pin assignment S internal 6–3/5–4. Pin assignment T external 5–4/6–3.	1	R305332
010.1626 	<b>Connection Module 10 x RJ45/u ISDN/Bus</b> For the connection of up to two ISDN primary copper connections (Primary Rate Interface). Includes test jacks.	1	R302182

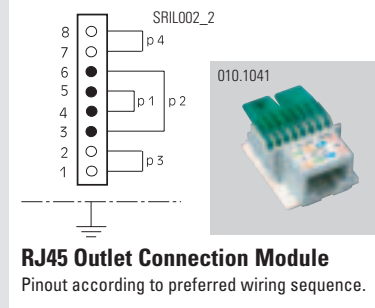
 Labelling software and free MS Word  
 templates for fast and professional patch  
 panel labelling are available on our website  
 ([www.rdm.com](http://www.rdm.com)).

Ordering Information	Description	Packing Unit	Part Number
<p>020.0721</p> 	<p><b>Blind Cover</b> Covers one empty rack space in a voice panel. Colour: light grey.</p>	1	R35117
<p>020.0045</p> 	<p><b>Labelling Sheet</b> Perforated labelling strips without logo (unlettered) for labelling the voice panel. Contains 72 labelling strips. Suitable for laser printer.</p>	1	R35119
<p>020.0724</p> 	<p><b>Mounting Support</b> Enable user-friendly installation of the voice panel direct at the 19" cabinet.</p>	1	R35118

**i** Labelling software and free MS Word templates for fast and professional patch panel labelling are available on our website ([www.rdm.com](http://www.rdm.com)).

## Voice Integration Overview SRV

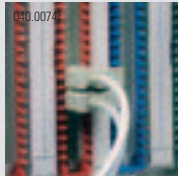
010.1052f



### 4-Pair Cable

Category 5e or 6  
installation cable,  
4-pair S-FTP, FTP,  
or UTP.

010.0074

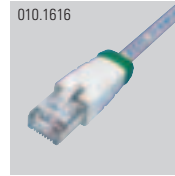


### 2-Pair Patch Cord UTP



### A4 Plug

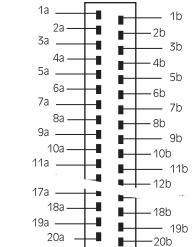
010.1616



### RJ45 Plug

Pinout according to preferred wiring sequence.

SRIL002\_10

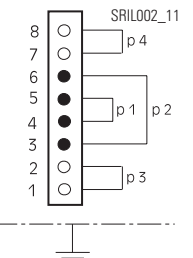


### Pinout of SRV Patch Connection Block

Front  
View



010.1041



### RJ45 Connection Module

Pinout according to  
preferred wiring sequence.

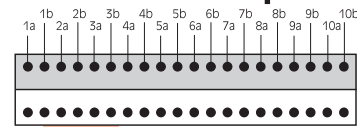
### Multipair Cable

AWG 26-24/10-, 20-, 40-, 100-pair

SRIL002\_12

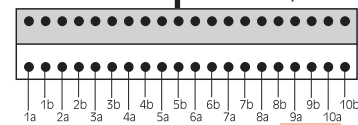


SRIL002\_13



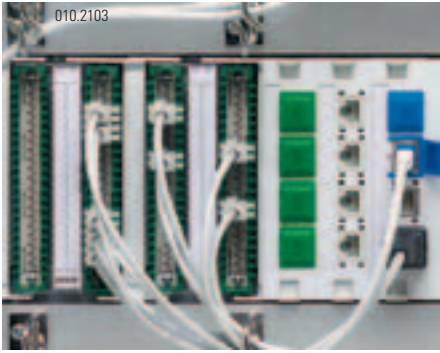
### 1-Pair Jumper Wire Black/White

Jumper Side



### Pinout IDC Connection Module

PABX



SRV•Patch adds a new dimension to the flexibility of UTP/FTP building cabling systems: a cost-effective solution for terminating multi-conductor secondary cables and connecting voice services to the horizontal distributors up to the telecommunications outlet.

Private automatic branch exchanges (PABX) are normally connected to a main distribution frame. The chassis of a modern PABX can be fitted with different circuit boards and the software is programmed accordingly. The termination of each individual hardware address is wired in the main distributor, which acts as the interface between the building cabling system and the PABX. UTP multipair cables are used to connect floor distributors to the main distribution frames. Because of the relatively low signal bandwidth, cables of Category 3 or lower are recommended.

The horizontal cabling is generally implemented with balanced Category 5 cables and devices so that the cabling system can be used also for higher transmission rates.

In the patch panel the various applications can be identified by means of the patch cord colours and the "Data Safe Lock" colour coding on the telecommunications outlet.

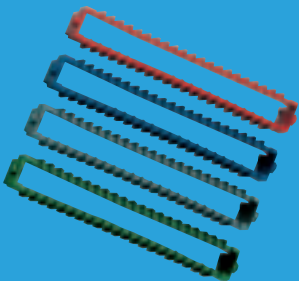
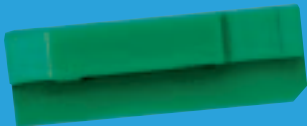
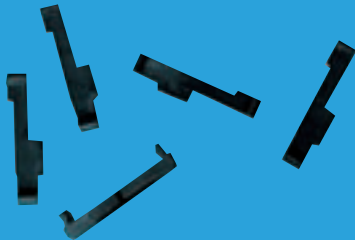
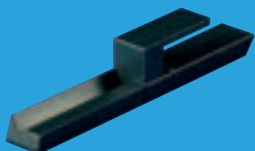
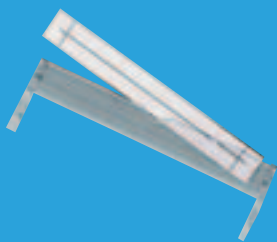
#### Features

- High packing density: max. 240 pairs (without spacers) or max. 200 pairs (with spacers) per 19" 3U rack (the 4th unit of vertical rack space is essential to allow swivelling).
- Modular and compatible with the R&Mfreenet Cabling System.
- Low cost installation with "Easy Lock" termination technique.
- Connections accessible from the front.
- Swivel-mounted and removable patch panels.

#### Mechanical, Electrical and Transmission Characteristics (measured at 20 °C)

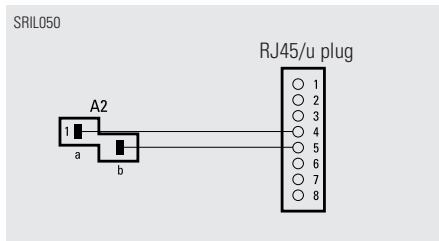
Contact material	CuSn <sub>6</sub> silver-plated, passivated	
Connection block	Polycarbonate (V-0)	
Wire diameter	0.50 mm (AWG 24) to 0.65 mm (AWG 22)	
Insulation diameter	0.7 to 1.6 mm	
Contact resistance	< 5 mΩ	
Insulation resistance	> 100 MΩ/500 V AC <sub>eff</sub>	
Near-end crosstalk attenuation (NEXT)	100 MHz	> 54.0 dB
	20 MHz	> 54.0 dB
	10 MHz	> 54.0 dB
	1 MHz	> 54.0 dB
Attenuation	100 MHz	< 0.4 dB
	20 MHz	< 0.2 dB
	1 MHz	< 0.1 dB

Ordering Information	Description	Packing Unit	Part Number
 <p>020.0966.1</p>	<p><b>SRV Swivel Unit, 1 x 40 Poles</b></p> <p>With one 20 pair SRV•Patch connection block. “Easy Lock” cable termination. Includes mounting kit and labelling strips. The 4th unit of vertical rack space is essential to allow swivelling. Overall dimensions: 4U, 14HP. Colour: light grey (Snap-On frame green).</p> <p><b>i</b> Suitable jumper ring panel R924007-01/02. Not compatible with R306179/R306180.</p>	1	R924116
 <p>020.0967.1</p>	<p><b>SRV Swivel Unit 2 x 40 Poles</b></p> <p>With two 20 pair SRV•Patch connection blocks. “Easy Lock” cable termination. Includes mounting kit and labelling strips. The 4th unit of vertical rack space is essential to allow swivelling. Overall dimensions: 4U, 14HP. Colour: light grey (Snap-On frame green).</p> <p><b>i</b> Suitable jumper ring panel R924007-01/02. Not compatible with R306179/R306180.</p>	1	R924117
 <p>020.0971</p>	<p><b>SRV Connection Block, 1 x 40 Poles</b></p> <p>For upgrading the 1 x 40 pair SRV Swivel Unit (R924116). Tool-free “Easy Lock” cable termination. Includes mounting kit and green Snap-On frame.</p>	1	R925894
 <p>010.1275</p>	<p><b>Labelling Sheet</b></p> <p>Perforated labelling strips without logo (unlettered), for labelling 28 SRV•Patch label strip holders. Suitable for laser printers.</p> <p><b>i</b> Units are suitable for 3U Global Rack (R35408, R35409) on page 53, 3U Rack (R924064).</p> <p>Labelling software and free MS Word templates for fast and professional patch panel labelling are available on our website (<a href="http://www.rdm.com">www.rdm.com</a>).</p>	10	R922067

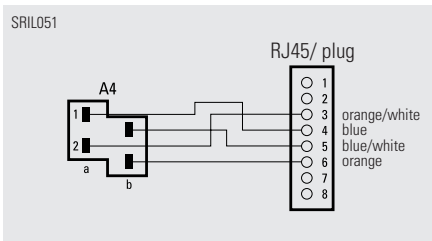
Ordering Information	Description	Packing Unit	Part Number
020.0968 	<b>Snap-On Frame</b> Colour coded for simple distinction of different functions.  <b>Snap-On Frame, grey</b> <b>Snap-On Frame, red</b> <b>Snap-On Frame, green</b>	10 10 10	R922036-GU R922036-RT R922036-GN
020.0716 	<b>Position Protection</b> Suitable for A4 and A6 plugs.	10	R35126
020.0969 	<b>Spacer</b> To clearly position the connector or to cover unused ports.	50	R922066
020.0054 	<b>Plug Holder</b> Connector holder for A4, A6 and A12 plugs. Colour: black.  <b>Plug Holder, large</b>	10	R22040
020.0970 	<b>Label Strip Holder</b> Spare part for swivel unit. Includes labelling strip.	10	R922039

## Voice Integration A2/A4/A6 RJ45 Patch Cords

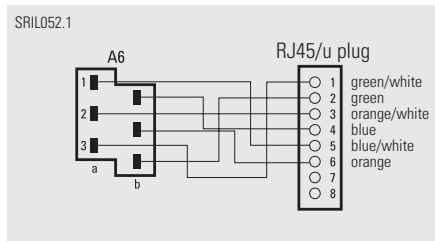
1



2



3



### Ordering Information

### Description

### Packing Unit

### Part Number

010.1630



Patch Cord, UTP 1P, A2-RJ45/u, 0.5 m

1 10

R925685-GN

Patch Cord, UTP 1P, A2-RJ45/u, 1.0 m

1 10

R925686-GN

Patch Cord, UTP 1P, A2-RJ45/u, 1.5 m

1 10

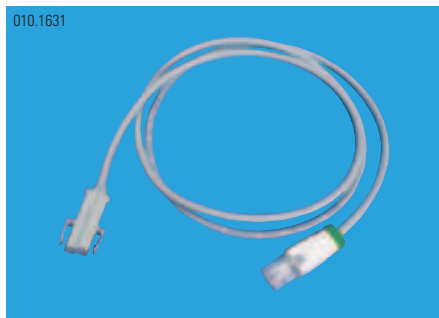
R925687-GN

Patch Cord, UTP 1P, A2-RJ45/u, 2.0 m

1 10

R925688-GN

010.1631



Patch Cord, UTP 2P, A4-RJ45/u, 0.5 m

2 10

R924005-GN

Patch Cord, UTP 2P, A4-RJ45/u, 1.0 m

2 10

R924010-GN

Patch Cord, UTP 2P, A4-RJ45/u, 1.5 m

2 10

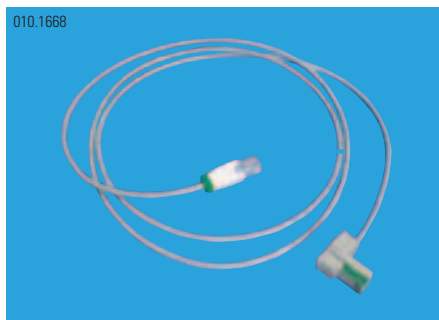
R924015-GN

Patch Cord, UTP 2P, A4-RJ45/u, 2.0 m

2 10

R924020-GN

010.1668



Patch Cord, UTP 3P, A6-RJ45/u, 0.5 m

3 10

R925694-GN

Patch Cord, UTP 3P, A6-RJ45/u, 1.0 m

3 10

R925695-GN

Patch Cord, UTP 3P, A6-RJ45/u, 1.5 m

3 10

R925696-GN

Patch Cord, UTP 3P, A6-RJ45/u, 2.0 m

3 10

R925697-GN

**i** Additional patch cord types available upon request.



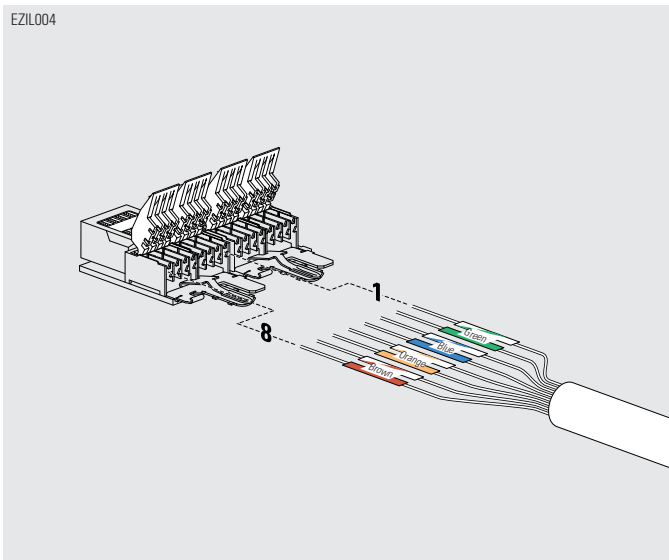


The RJ45 ISDN connection modules are the heart of an ISDN cabling. They are fitted with shielded or unshielded RJ45 ports and allow tool-free and time-saving connection of S-STP, FTP, S-FTP and UTP installation cables.

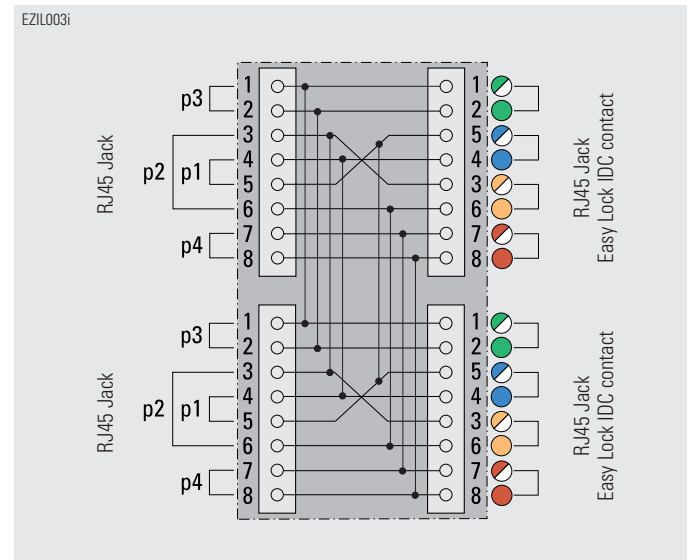
#### Features

- Tool-free “Easy Lock” connection technique (IDC) for data cables with AWG 24-22 wire diameter.
- Error-free connection thanks to labelled wiring.
- Connection without pair crossover.
- Simple and time-saving shield contacting (also for cables without drain wire).

#### Parallel connection



#### Pin assignment




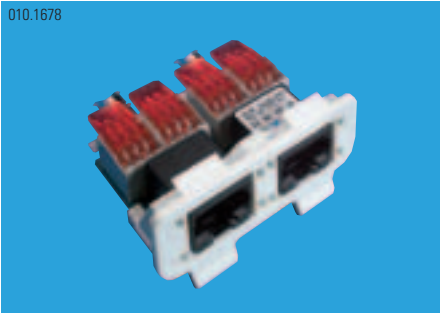


#### Mechanical Data

Number of RJ45 jacks	1 and 2
Contact material	CuSn
Contact surface	1.27 µm gold over 3 µm nickel
Insulation material	Polyester, fiber glass reinforced (UL-94-V0)
Mating cycles, min.	1000 ISO/IEC 11801
Number of IDCs	4 (with 1 and 2 jacks)
Contact material	CuSn, silver-plated, 4 – 8 µm passivated
Insulation material	Polycarbonate (UL 94V-0)
Wire diameter	0.5 mm (AWG 24) – 0.65 mm (AWG 22)
Insulation diameter	0.8 – 1.5 mm
Mating cycles	IDC, min. 100
Wire strain relief	Through plastic ribs
Cable strain relief	Through cable ties
Shield contacting 1 <sup>1</sup>	Large surface contact springs (on plug)
Shield contacting 2 <sup>1</sup>	Shield lance (on cable) 4.8 x 0.5 mm

**i** IDC = Insulation Displacement Contact (IDC method of termination)  
 AWG 22 = 0.643 mm  
 AWG 23 = 0.574 mm  
 AWG 24 = 0.511 mm  
<sup>1</sup> Applies to shielded version only.

## ISDN RJ45 Connection Modules

Ordering Information	Description	Packing Unit	Part Number
 <p>020.0076</p>	<p><b>Connection Module, 1 x RJ45/s, ISDN-Bus</b>            ISDN connection module with one shielded 8-pin Bus RJ45 port.            Tool-free "Easy Lock" connection technique for data cables with wire diameter AWG 24-22.            Integral cable strain relief. Includes dust cover, two cable ties and installation instructions.</p>	10	R25372
 <p>020.0077</p>	<p><b>Connection Module, 1 x RJ45/u, ISDN-Bus</b>            ISDN connection module with one unshielded 8-pin Bus RJ45 port.            Tool-free "Easy Lock" connection technique for data cables with wire diameter AWG 24-22.            Integral cable strain relief. Includes dust cover, two cable ties and installation instructions.</p>	10	R25373
 <p>010.1677</p>	<p><b>Connection Module, 2 x RJ45/s, ISDN-Bus</b>            ISDN connection module with two shielded 8-pin Bus RJ45 ports.            Tool-free "Easy Lock" connection technique for data cables with wire diameter AWG 24-22.            Integral cable strain relief. Includes two dust covers, two cable ties and installation instructions.            (Module holder 2 port included.)</p>	10	R25431
 <p>010.1678</p>	<p><b>Connection Module, 2 x RJ45/u, ISDN-Bus</b>            ISDN connection module with two unshielded 8-pin Bus RJ45 ports.            Tool-free "Easy Lock" connection technique for data cables with wire diameter AWG 24-22.            Integral cable strain relief. Includes two dust covers, two cable ties and installation instructions.            (Module holder 2 port included.)</p>	10	R25434



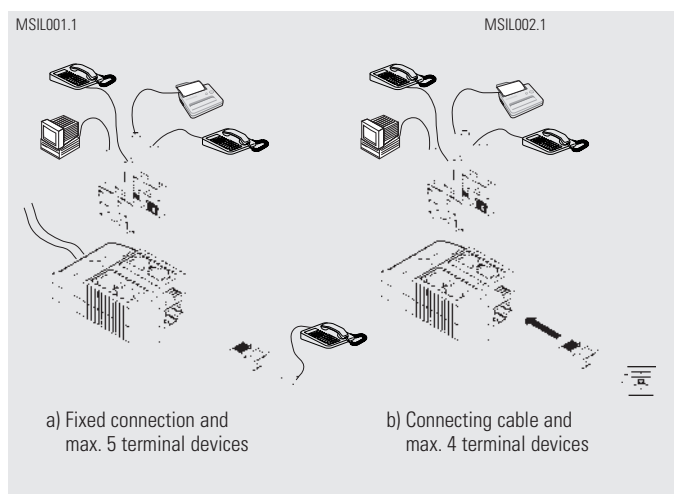
The RJ45 ISDN Mini-S-Bus replaces or extends S-Bus cabling. It allows fast and economical connection of up to five ISDN terminal devices.

#### Features

- 4 or 5 terminal devices can be connected.
- Attractive design in white and anthracite.
- Shielded and unshielded version.
- Large labelling area.
- Integrated  $100\ \Omega$  termination resistors (can be disabled with jumpers).
- Simple connection via plug or cable.
- Small dimensions.

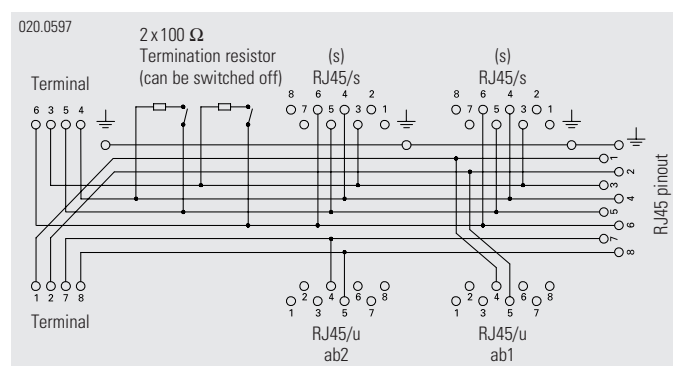
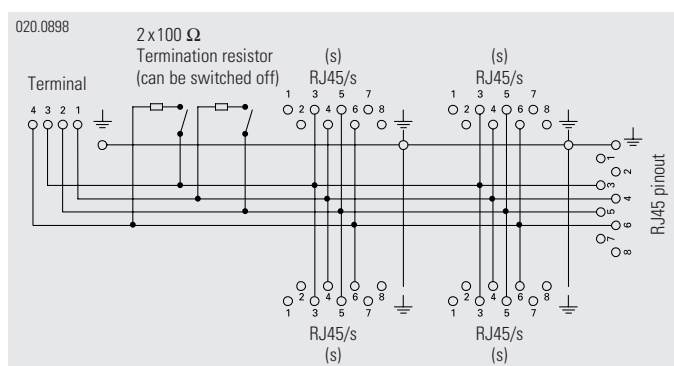
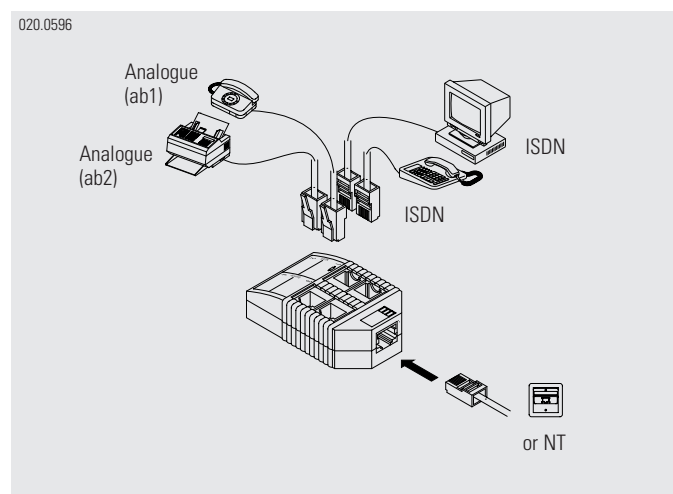
#### ISDN Mini-S-Bus digital

Connection options/technical data

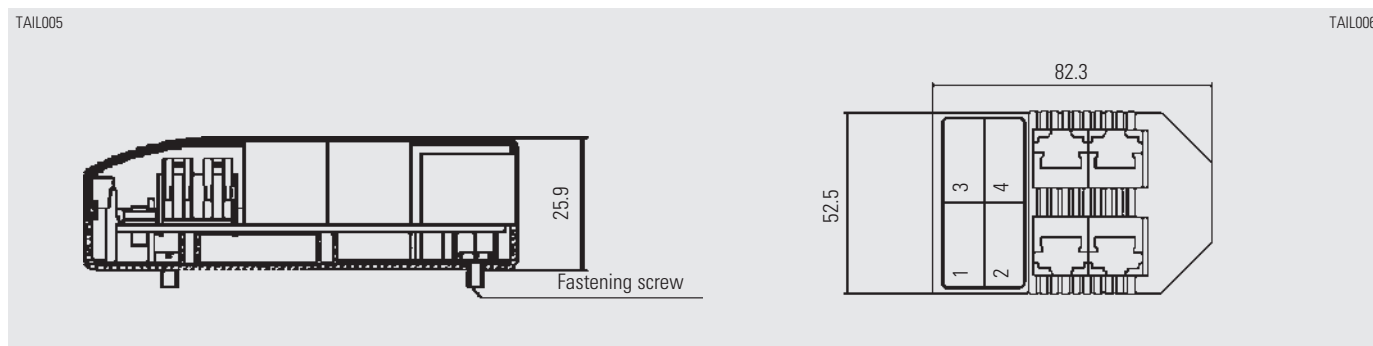


#### ISDN Mini-S-Bus analogue/digital

Connection options/technical data



#### Dimensions



## ISDN Mini-S-Bus

Ordering Information	Description	Packing Unit	Part Number
 <p>MSP1002</p>	<b>ISDN Mini-S-Bus digital, shielded, anthracite</b> For connecting up to five ISDN terminal devices. Replaces or extends S-Bus cabling.	1	R25520
	<b>ISDN Mini-S-Bus digital, shielded, white</b>	1	R25521
	<b>ISDN Mini-S-Bus digital, unshielded, anthracite</b>	1	R25522
	<b>ISDN Mini-S-Bus digital, unshielded, white</b>	1	R25523
 <p>020.0599</p>	<b>ISDN Mini-S-Bus analog/digital, white</b> With 2 analogue and 2 digital RJ45 connections.	1	R25987
	<b>ISDN Mini-S-Bus analog/digital, anthracite</b>	1	R25988

020.0074



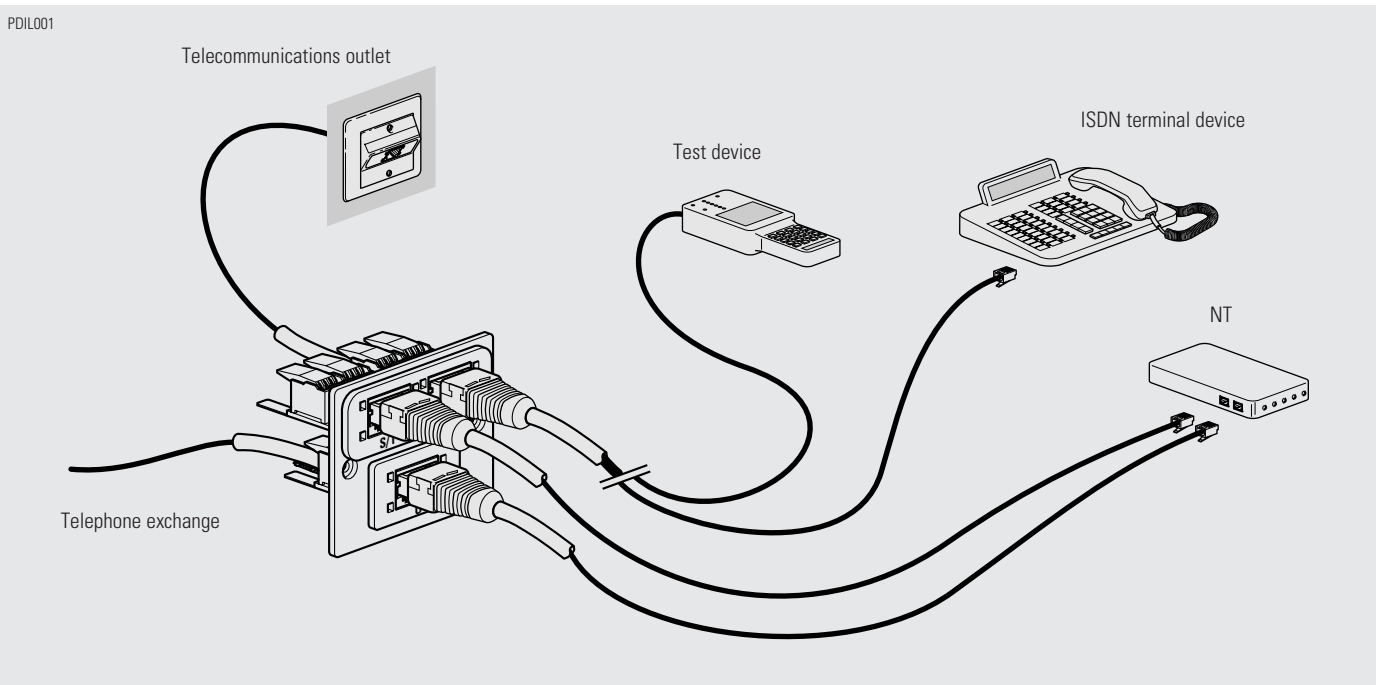
With the RJ45 ISDN test outlets the NT output signal and the S-interface functions can be tested without interrupting operation of the ISDN Bus. They are also suitable as first S-Bus outlets. The NT is connected to the U and S output of the outlet with an RJ45 connection cable. Any ISDN terminal device can be connected to the second S-interface.


**Features**

- 2 parallel S/T outputs.
- 1U output.
- 8-pole design.
- Ready for the “Data Safe Lock” keying system.
- All connections are labelled.

**Example**

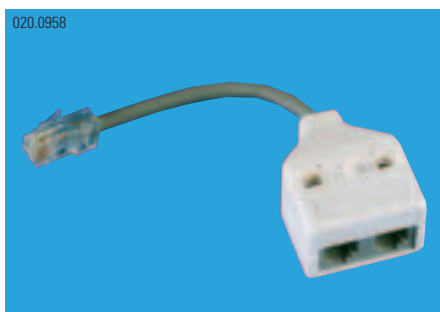
PDIL001



Ordering Information	Description	Packing Unit	Part Number
	<b>FM Test Outlet ISDN, 3 x RJ45/s, 88 x 88</b> 8-pole bus, shielded. Three RJ45 ports. Colour: white/RAL 9010.	10	R25762
	<b>WM Test Outlet ISDN, 3 x RJ45/s, 78 x 78</b>	10	R25760
	<b>FM Test Outlet ISDN, 3 x RJ45/u, 88 x 88</b> 8-pole bus, unshielded. Three RJ45 ports. Colour: white/RAL 9010.	10	R25764
	<b>WM Test Outlet ISDN, 3 x RJ45/u, 78 x 78</b>	10	R25765

ISDN Accessories  
RJ45 Connecting Cables for NT

Ordering Information	Description	Packing Unit	Part Number
<div>020.0075</div> <div></div>	<b>ISDN-T Resistor set of 2</b> Two resistors to subsequently mount onto the “Easy Lock” terminals of the ISDN outlets.	1	R25111
<div>010.1669</div> <div></div>	<b>Adapter RJ45/s-RJ45/s ISDN-T</b> With 100 Ω termination resistor on pins 4–5 and 3–6. This adapter lets ISDN outlets turn into ISDN-T outlets. It is placed between the outlet and the terminal device.	1	R25778
<div>010.1667</div> <div></div>	<b>Special Line Cord for NT + 2ab, unshielded</b> Special connecting cable 3 x RJ45 to 1 x RJ45. The NT 2ab connections (So and 2 x ab) can be lead through one single connecting cable. Length: 1.5 m	1	R35013-150
<div>010.1607</div> <div></div>			
<div>010.1632</div> <div></div>	<b>Connecting Cable for NT + 2ab, incl. U interface, unshielded</b> Special line cord 4 x RJ45 to 2 x RJ45. All NT 2ab connections (U, So and 2 x ab) can be lead through one single connecting cable. Length: 0.5 m 1.5 m 3.0 m	1 1 1	R300932 R300933 R300934
<div>010.1630</div> <div></div>			

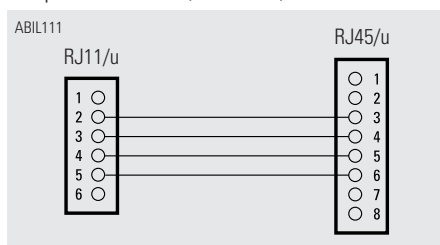


The telephony adaptors are used for connecting telephone sets with RJ11 interfaces to cabling systems with RJ45 interface.

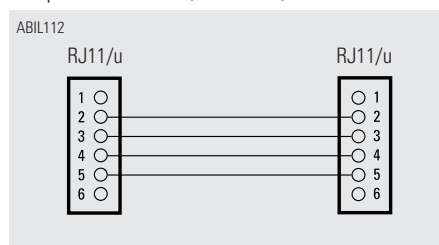
#### Features

- Connector matching: RJ45 to RJ11.
- Unshielded version.

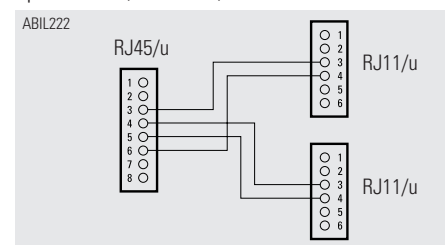
Telephone cord RJ11/u to RJ45/u 1



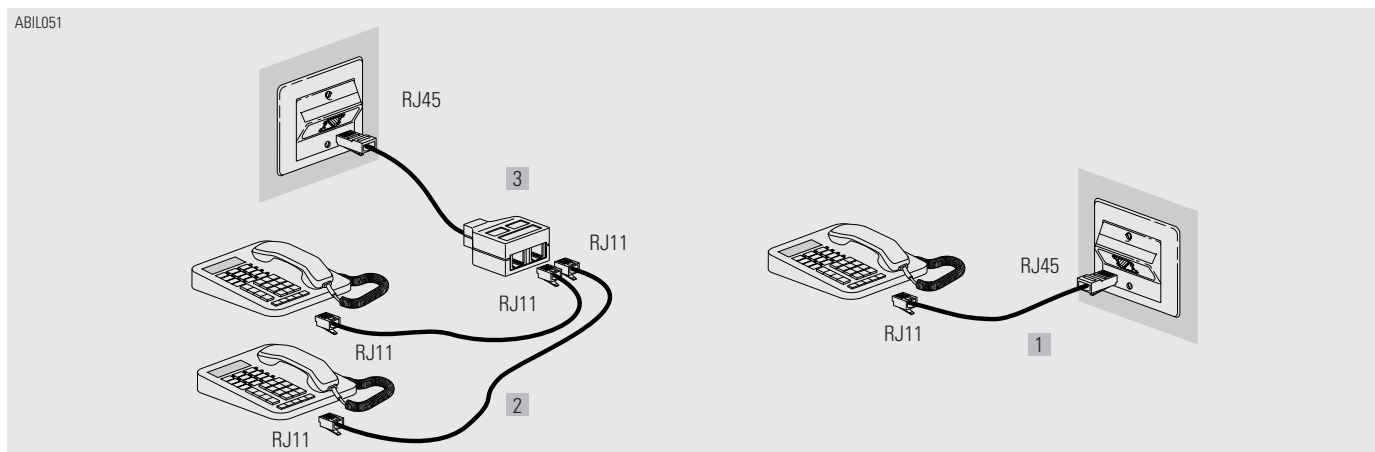
Telephone cord RJ11/u to RJ11/u 2



Splitter RJ45/u to RJ11/u 3



#### Application



Ordering Information	Description	Packing Unit	Part Number
	<b>Telephone Cord UTP, RJ45/u to RJ11/u, 3 m</b> 1 RJ45 pin assignment: 4–5/3–6.	10	R925693
	<b>Telephone Cord UTP, RJ45/u to RJ11/u, 5 m</b> 1 RJ45 pin assignment: 4–5/3–6.	10	R925692
	<b>Telephone Cord UTP, RJ11/u to RJ11/u, 3 m</b> 2	10	R925934
	<b>Telephone Cord UTP, RJ11/u to RJ11/u, 5 m</b> 2	10	R925933
	<b>Splitter RJ45/u to 2 x RJ11/u</b> 3 For integrating RJ11 into FTP, S-FTP, and UTP cabling systems with RJ45 interface. RJ45 pinout: 4–5/3–6.	10	R925721

## Telephony Adaptor

TAPI001



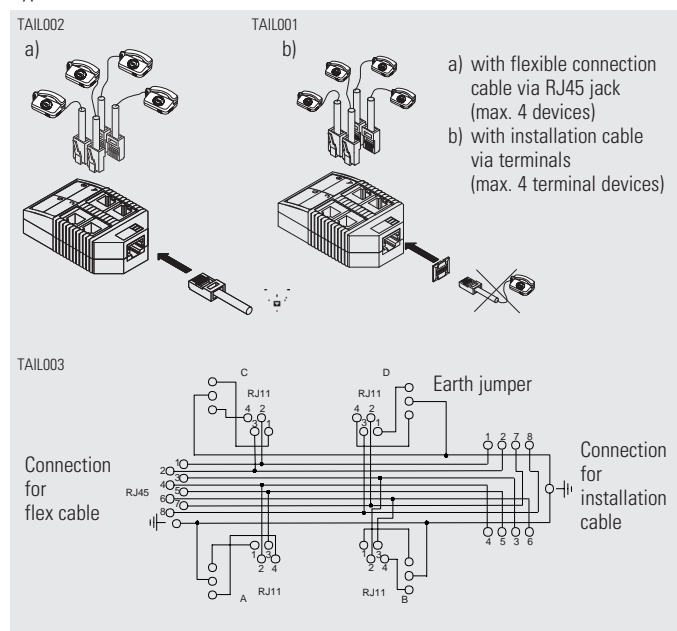
In a generic cabling system the horizontal cable (connection from the floor distributor to the telecommunications outlets) generally has 8 conductors that are terminated to an RJ45 outlet. However, many terminals such as telephone and fax use only two conductors. In other words, six conductors in the horizontal cable remain unused.

With the R&M distributors 1 x RJ45 – 4 x RJ11/4 x RJ45 up to four 2-conductor terminal devices can be connected to an RJ45 jack. One conductor pair each of the RJ45 outlet or terminal block is led out to the RJ11 jack. This makes full use of all conductors available in the horizontal cable.

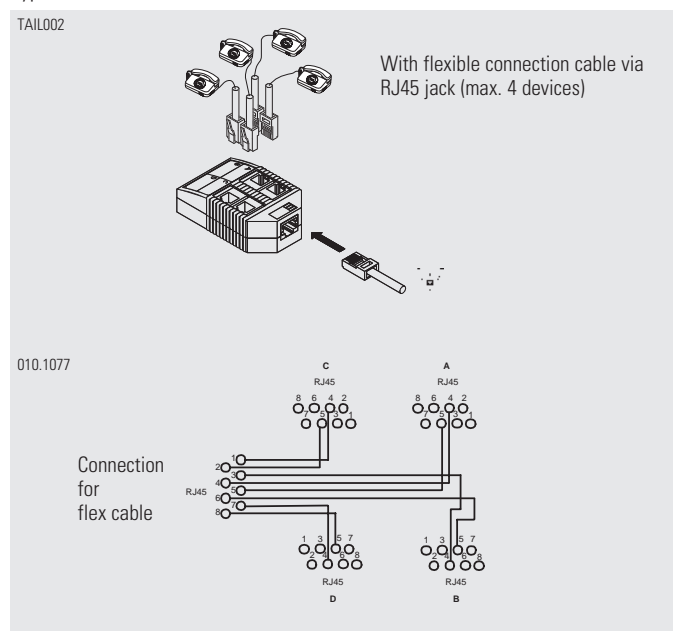
### Features

- 4 terminal devices connectible to one RJ45 outlet.
- Full use of connection cable conductors.
- Connectible via terminals or jacks (R25524 only).
- Earth connection of the outputs selectable by means of jumpers (R25524 only).
- Large labelling area.
- Elegant design.
- Small dimensions.

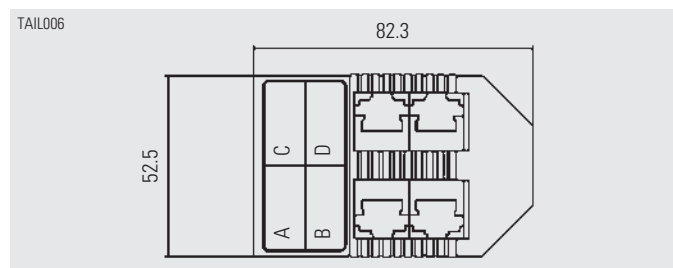
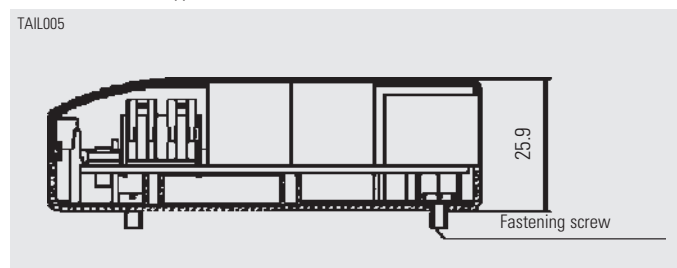
Type: Distributor 1 x RJ45 – 4 x RJ11



Type: Distributor 1 x RJ45 – 4 x RJ45



Dimensions, both types



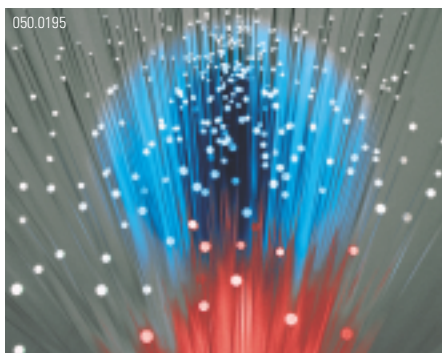


Ordering Information	Description	Packing Unit	Part Number
 <p>TAPI001</p>	<p><b>Distributor 1 x RJ45 to 4 x RJ11/u</b>            For integrating RJ11 into FTP, S-FTP, and UTP cabling systems with RJ45 interface.            Colour: pearl white.</p>	1	R25524
 <p>020.0720</p>	<p><b>Distributor 1 x RJ45/u to 4 x RJ45/u</b>            Combined with the corresponding concentrator module (R35122, page 82) it takes full advantage of all 8 conductors in a generic cabling system.            Colour: anthracite.            C-UL-US certified.</p>	1	R35121

### **i Selectable Earth Connection**

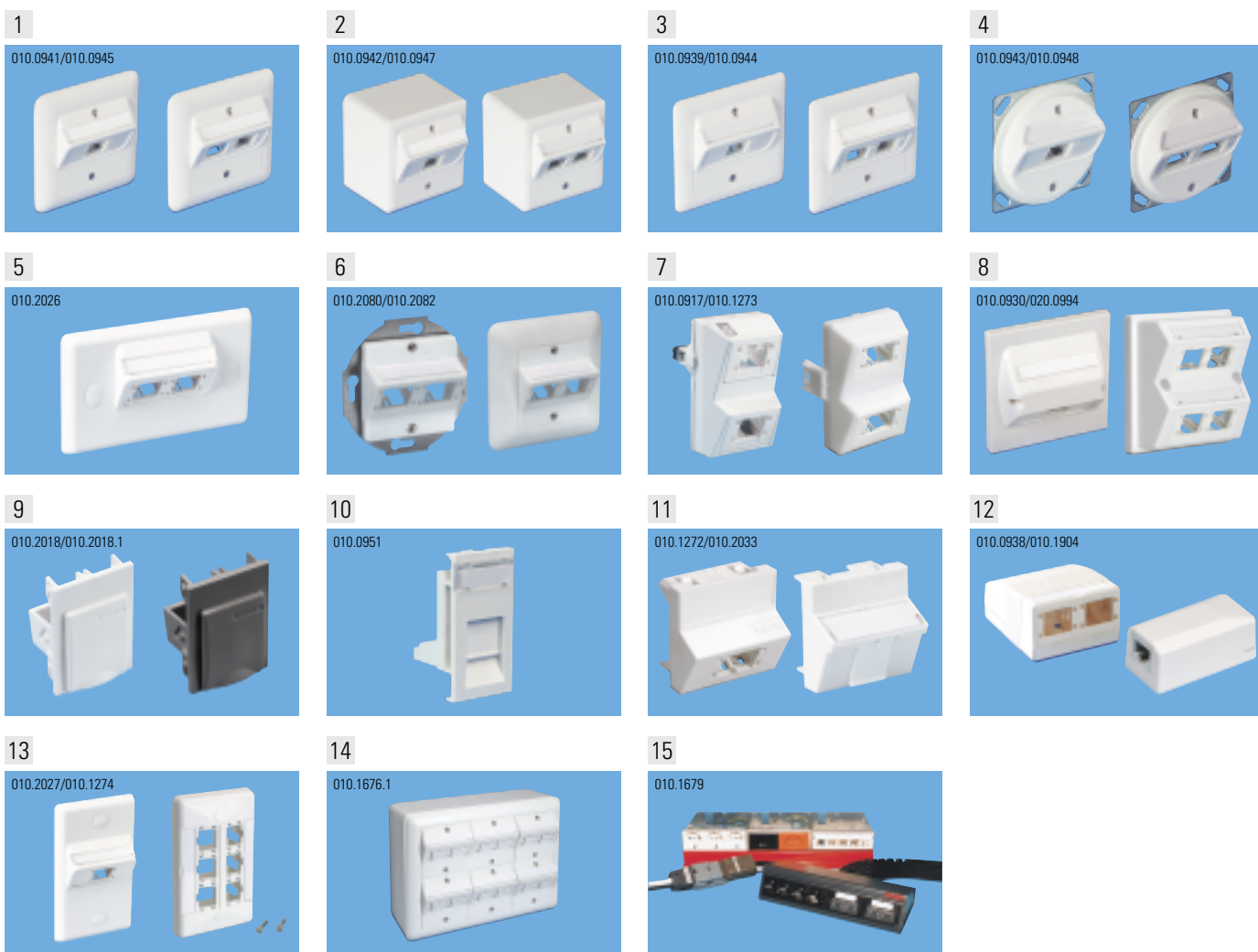
Telephones in older installations still require an earthing control key, meaning that a third wire at the RJ11 jack is needed. Depending on the telephone system this wire possibly runs on a different pin. It can be wired to either pin 1 or 4 of the RJ11 jack in the R&M distributor 1 x RJ45 – 4 x RJ11 by means of jumpers. On the input side the shielding of the horizontal cable serves as earth conductor. It is connected to the shielding of the RJ45 jack, or wired with a terminal clip (1 x RJ45/4 x RJ11 distributors only).





R&M has further cemented its international success and competitiveness in generic cabling by developing a wide range of RJ45 outlets, working together with its customers. Market trends are observed and continuously integrated in our outlet assortment. Consequently, it features flush-mounted, wall-mounted, floorbox, duct-mounted and multiport solutions for a great variety of applications. Various manufacturers of circuit programmes invest into their own R&Mfreenet outlets in close cooperation with R&M.

**Please refer to page 129 for fiber optic outlets overview.**



Products	Page
1 FM (Global) Outlets, 88 x 88 mm	104
2 WM Outlets, 78 x 78 mm	106
3 DM Outlets, 80 x 86 mm	107
4 DM Outlets, 62.5 mm	108
5 503 Outlets	109
6 DIN Outlets	110
7 Mounting Units DK	111
8 BS Faceplates	112

Products	Page
9 Flap Jack Module Holder	113
10 Shuttered Fascia, 25 x 50 mm	114
11 Mounting Plates, 45 x 45 mm	115
12 Surface Mount Box	116
13 US Style Faceplates	118
14 MUTO Outlets, 12 x 1 Port	120
15 Third-party Cu outlet suppliers	121

## FM Outlets

### 88 x 88 mm

010.0996

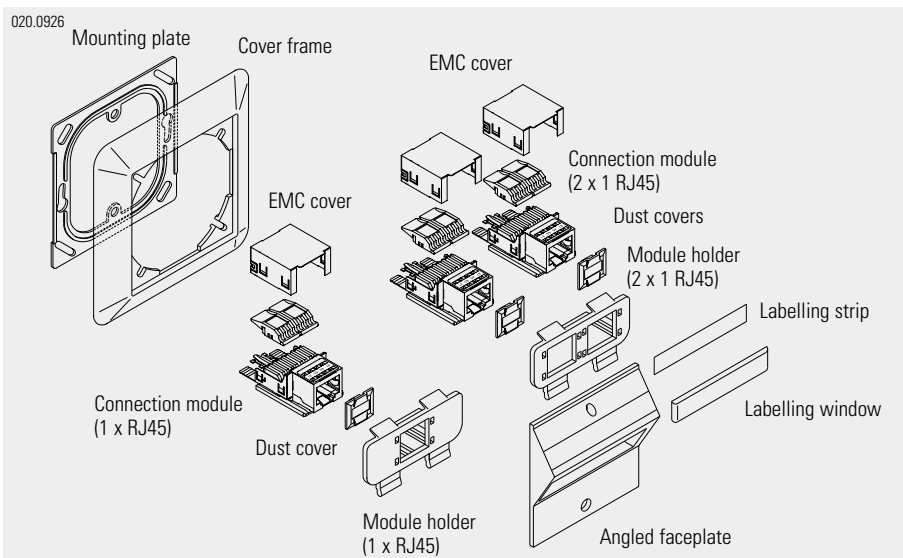


These outlets are designed for flush installation on walls or ducts and accommodate cover frames and duct covers with  $\varnothing$  58 mm or  $\square$  60 mm cutouts.

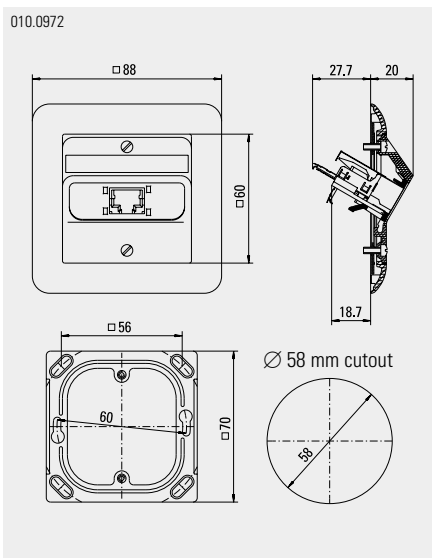
The mounting plate supplied with each outlet kit allows flush installation on backboxes and floorbox module holders with  $\varnothing$  60 mm mounting track or  $\square$  56 mm mounting distance.

Recommended depth for backbox and floorbox module holder > 70 mm.

020.0926



010.0972



#### Ordering Information

#### Description

#### Packing Unit

#### Part Number

010.0940



010.0945



#### FM Outlet, 88 x 88, 1 Port

Plastic: ASA+PC.

Halogen-free according to DIN/VDE 0472/815.

Colour: white/RAL 9010

10

R925764

Colour: beige/RAL 1013

10

R925765

#### FM Outlet, 88 x 88, 2 x 1 Port

Colour: white/RAL 9010

10

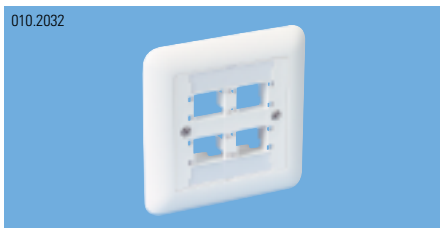
R925775

Colour: beige/RAL 1013

10

R925776

010.2032



#### FM Outlet, 88 x 88, 4 x 1 Port

Plastic: ASA+PC

Halogen-free according to DIN/VDE 0472/815.

Colour: white/RAL 9010

10

R305149

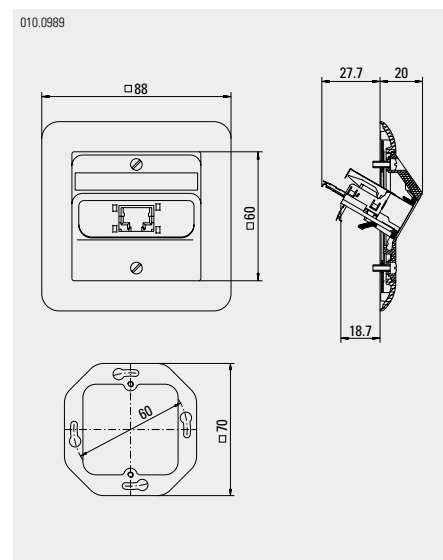
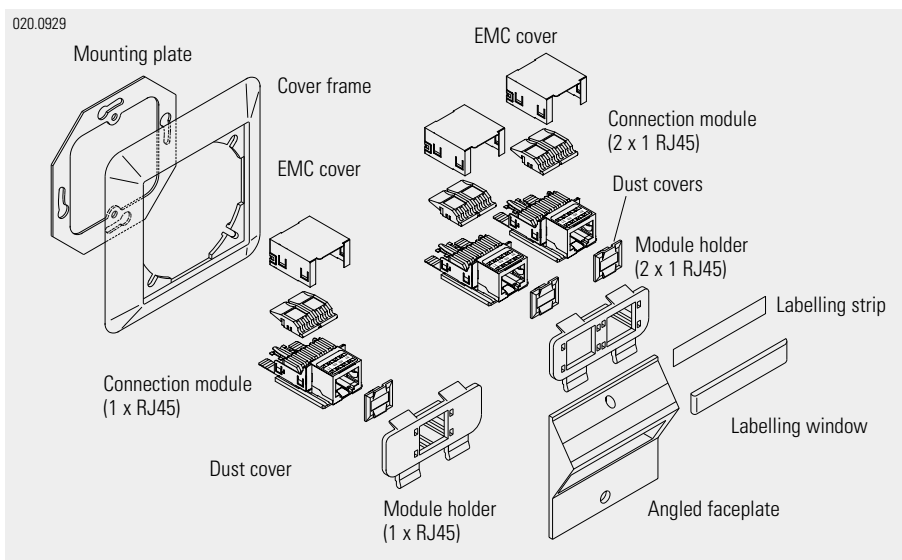
Matching Modules					Matching Accessories		
1 x RJ45/s 1 x RJ45/u (1 + 2 port only)	1 x RJ45/s Cat. 6 1 x RJ45/u Cat. 6 (1 + 2 port only)	1 x RJ45 without Mounting Plate (4 x 1 port only)	FO Adaptors (1 + 2 port only)	1 x RJ45 ISDN 2 x RJ45 ISDN	Security Products	Splash Protective Line	Accessories
040.0060	010.1624	010.2016	020.0700	020.0077	010.0962.2	010.2128.1	010.0934
010.1041	010.1623	010.2017	030.1389	010.1677	030.1509		020.0045
Page 30	Page 30	Page 33	Page 40/139	Page 94	Page 151	Page 161	Page 127



These outlets are designed for flush installation on walls or ducts and accommodate cover frames and duct covers with  $\varnothing$  70 mm or  $\square$  70 mm cutouts.

The mounting plate supplied with each outlet kit allows flush installation on backboxes and floorbox connection module holders with  $\varnothing$  60 mm mounting track.

Recommended depth for backbox and floorbox module holder > 70 mm.



Ordering Information	Description	Packing Unit	Part Number
 	<b>FM Global Outlet, 88x88, 1 Port</b>		
	Plastic: ASA+PC		
	Halogen-free according to DIN/VDE 0472/815	10	R925766
	Colour: white/RAL 9010	10	R925767
	<b>FM Global Outlet, 88x88, 2x1 Port</b>		
	Colour: white/RAL 9010	10	R925777
	Colour: beige/RAL 1013	10	R925778
	<b>FM Global Outlet, 88x88, 4x1 Port</b>	10	R305150
	Plastic: ASA+PC		
	Halogen-free according to DIN/VDE 0472/815		
	Colour: white/RAL 9010		

Matching Modules					Matching Accessories		
1 x RJ45/s 1 x RJ45/u (1 + 2 port only)	1 x RJ45/s Cat. 6 1 x RJ45/u Cat. 6 (1 + 2 port only)	1 x RJ45 without Mounting Plate (4 x 1port only)	FO Adaptors (1 + 2 port only)	1 x RJ45 ISDN 2 x RJ45 ISDN	Security Products	Splash Protective Line	Accessories
Page 30	Page 30	Page 33	Page 40/139	Page 94	Page 151	Page 161	Page 127

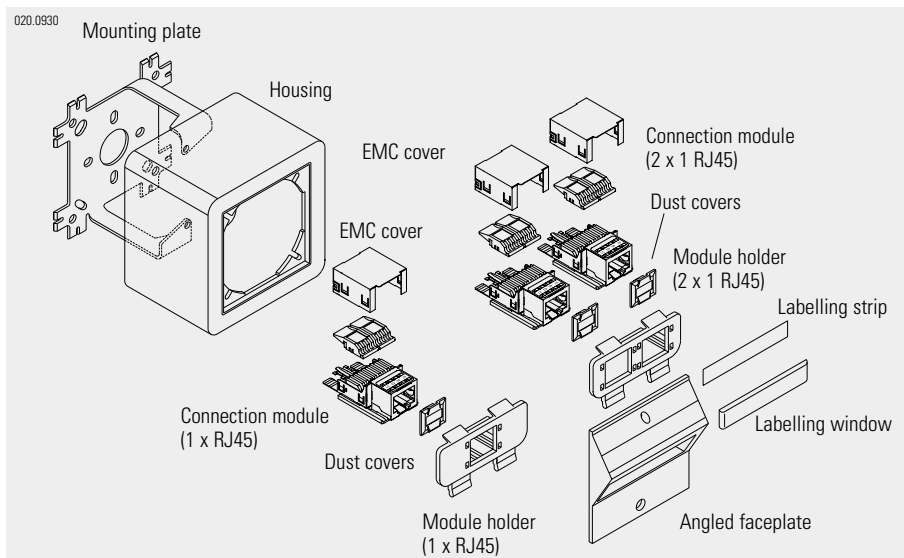
## WM Outlets 78 x 78 mm

010.0997

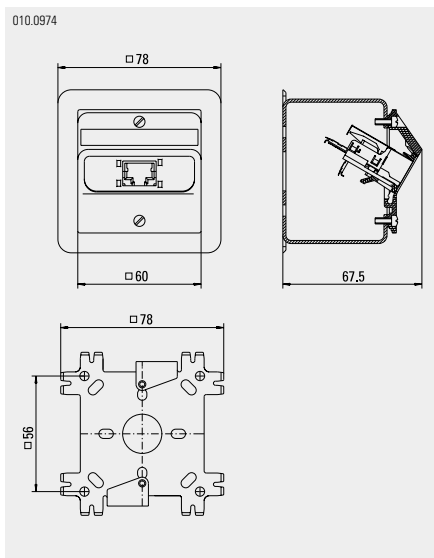


These outlets are designed for flush installation on walls or ducts. The installation cables can enter through the side or from behind. The mounting plate supplied with each outlet kit allows flush installation on backboxes and floorbox module holders with  $\varnothing$  60 mm mounting track or  $\square$  56 mm mounting distance.

020.0930



010.0974



### Ordering Information

### Description

### Packing Unit

### Part Number

010.0942



#### WM Outlet, 78 x 78, 1 Port

Plastic: ASA+PC  
Halogen-free according to DIN/VDE 0472/815  
Colour: white/RAL 9010

10

R925768

#### WM Outlet, 78 x 78, 1 Port

Colour: beige/RAL 1013

10

R925769

#### WM Outlet, 78 x 78, 1 Port

Mounting depth 52.5 mm. Colour: white/RAL 9010

10

R35127

010.0947



#### WM Outlet, 78 x 78, 2 x 1 Port

Colour: white/RAL 9010

10

R925779

#### WM Outlet, 78 x 78, 2 x 1 Port

Colour: beige/RAL 1013

10

R925780

#### WM Outlet, 78 x 78, 2 x 1 Port

Mounting depth 52.5 mm

10

R35128

Colour: white/RAL 9010

Matching Modules				Matching Accessories		
1 x RJ45/s 1 x RJ45/u	1 x RJ45/s Cat. 6 1 x RJ45/u Cat. 6	FO Adaptors	1 x RJ45 ISDN 2 x RJ45 ISDN	Security Products	Splash Protective Line	Accessories
040.0060 	010.1624 	020.0700 	020.0077 	010.0962.2 	010.2128.1 	010.0934 
010.1041 	010.1623 	030.1389 	010.1677 	030.1509 		020.0045 
Page 30	Page 30	Page 40/139	Page 94	Page 151	Page 161	Page 127

010.0998



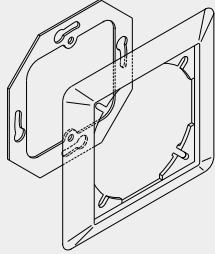
These outlets are designed for installation in ducts with  $\updownarrow$  80 mm metal or plastic covers.

The mounting plate supplied with each outlet kit allows flush installation on backboxes and floorbox module holders with  $\varnothing$  60 mm mounting track or  $\square$  56 mm mounting distance.

Recommended depth for backbox and floorbox module holder > 70 mm.

020.0932

Mounting plate Cover frame



Connection module  
(1 x RJ45)

EMC cover

EMC cover

Dust covers

EMC cover

EMC cover

EMC cover

EMC cover

EMC cover

EMC cover

EMC cover

EMC cover

EMC cover

EMC cover

EMC cover

EMC cover

EMC cover

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EMC cover

EMC cover

EMC cover

EMC cover

EMC cover

EMC cover

Connection module  
(2 x 1 RJ45)

Dust covers

Module holder  
(2 x 1 RJ45)

Labelling strip

Labelling window

Angled faceplate

Angled faceplate

Angled faceplate

Angled faceplate

Angled faceplate

Angled faceplate

Angled faceplate

Angled faceplate

Angled faceplate

Angled faceplate

Angled faceplate

Angled faceplate

Angled faceplate

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Angled faceplate

Angled faceplate

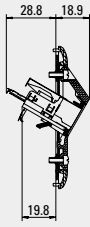
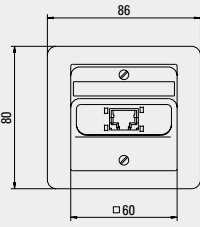
Angled faceplate



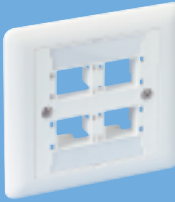
Angled faceplate






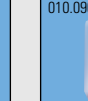






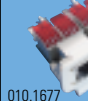


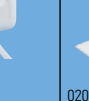
Angled faceplate

Angled faceplate

010.0977



Ordering Information	Description	Packing Unit	Part Number
 010.0939	<b>DM Outlet, 80 x 86, 1 Port</b>		
	Plastic: ASA+PC		
	Halogen-free according to DIN/VDE 0472/815		
	Colour: white/RAL 9010	10	R925762
 010.0944	Colour: beige/RAL 1013	10	R925763
	<b>DM Outlet, 80 x 86, 2 x 1 Port</b>		
	Colour: white/RAL 9010	10	R925773
	Colour: beige/RAL 1013	10	R925774
 010.2031	<b>DM Outlet, 80 x 86, 4 x 1 Port</b>	10	R305151
	Plastic: ASA+PC		
	Halogen-free according to DIN/VDE 0472/815		
	Colour: white/RAL 9010		

Matching Modules					Matching Accessories		
1 x RJ45/s 1 x RJ45/u (1 + 2 port only)	1 x RJ45/s Cat. 6 1 x RJ45/u Cat. 6 (1 + 2 port only)	1 x RJ45 without Mounting Plate (4 x 1 port only)	FO Adaptors (1 + 2 port only)	1 x RJ45 ISDN 2 x RJ45 ISDN	Security Products	Splash Protective Line	Accessories
 040.0060	 010.1624	 010.2016	 020.0700	 020.0077	 010.0962.2	 010.2128.1	 010.0934
 010.1041	 010.1623	 010.2017	 030.1389	 010.1677	 030.1509	 010.2128.1	 020.0045
Page 30	Page 30	Page 33	Page 40/139	Page 94	Page 151	Page 161	Page 127



## DM Outlets (Duct Mounted)

Ø 62.5 mm

010.1000



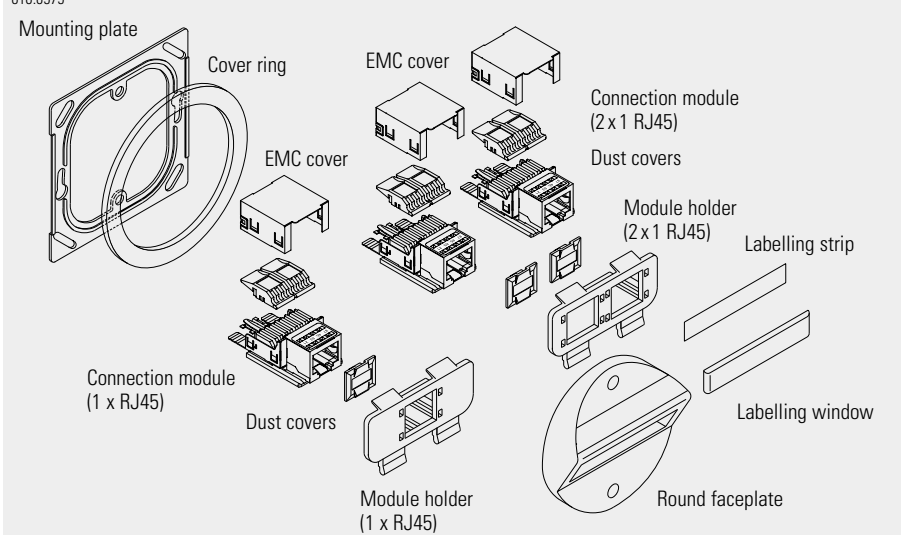
These outlets are designed for installation in ducts with metal or plastic covers.

The outlets are designed for cover frames and duct covers with Ø 64 mm cutouts.

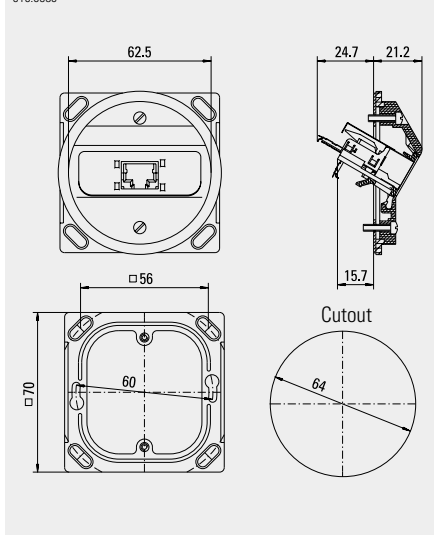
The mounting plate supplied with each outlet kit allows flush installation on backboxes and floorbox module holders with Ø 60 mm mounting track or □ 56 mm mounting distance.

Recommended depth for backbox and floorbox module holder > 70 mm.

010.0979



010.0980



### Ordering Information

### Description

### Packing Unit

### Part Number

010.0943



#### DM Outlet, Ø 62.5 mm, 1 Port

Plastic: ASA+PC  
Halogen-free according to DIN/VDE 0472/815  
Colour: white/RAL 9010

10

R925770

010.0948



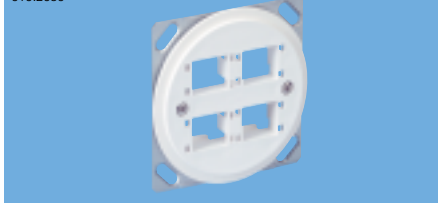
#### DM Outlet, Ø 62.5 mm, 2 x 1 Port

Plastic: ASA+PC  
Halogen-free according to DIN/VDE 0472/815  
Colour: white/RAL 9010

10

R925781

010.2030



#### DM Outlet, Ø 62.5 mm, 4 x 1 Port

Plastic: ASA+PC  
Halogen-free according to DIN/VDE 0472/815  
Colour: white/RAL 9010

10

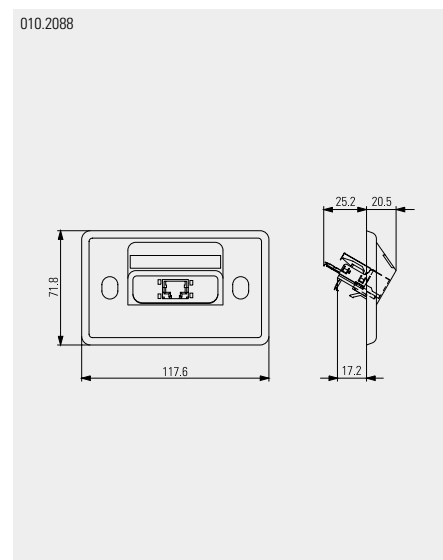
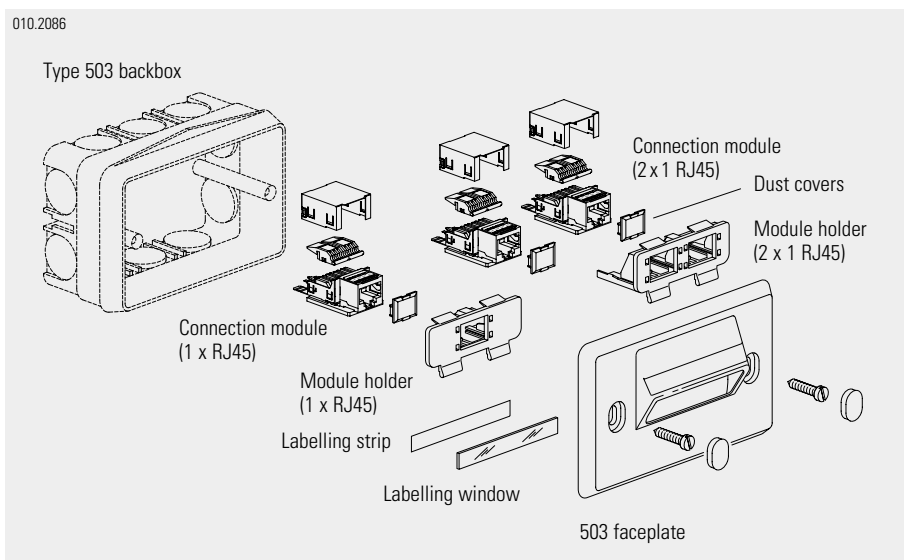
R305012

Matching Modules					Matching Accessories		
1 x RJ45/s 1 x RJ45/u (1 + 2 port only)	1 x RJ45/s Cat. 6 1 x RJ45/u Cat. 6 (1 + 2 port only)	1 x RJ45 without Mounting Plate (4 x 1 port only)	FO Adaptors (1 + 2 port only)	1 x RJ45 ISDN 2 x RJ45 ISDN	Security Products	Splash Protective Line	Accessories
040.0060	010.1624	010.2016	020.0700	020.0077	010.0962.2	010.2128.1	010.0934
010.1041	010.1623	010.2017	030.1389	010.1677	030.1509		020.0045
Page 30	Page 30	Page 33	Page 40/139	Page 94	Page 151	Page 161	Page 127





The 503 outlets are designed for flush installation on walls as well as in ducts and service poles.  
The mounting plate supplied with each outlet kit allows flush installation on backboxes with ↔ 83.5 mm mounting distance.



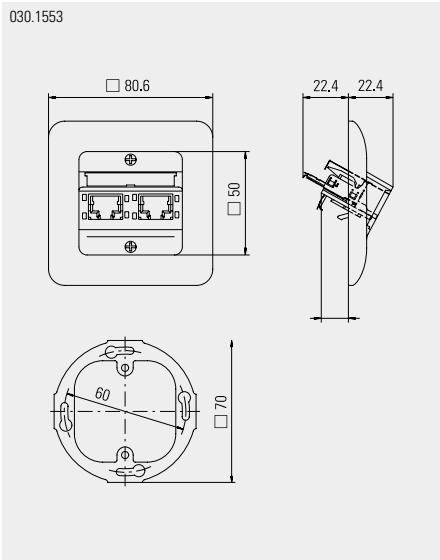
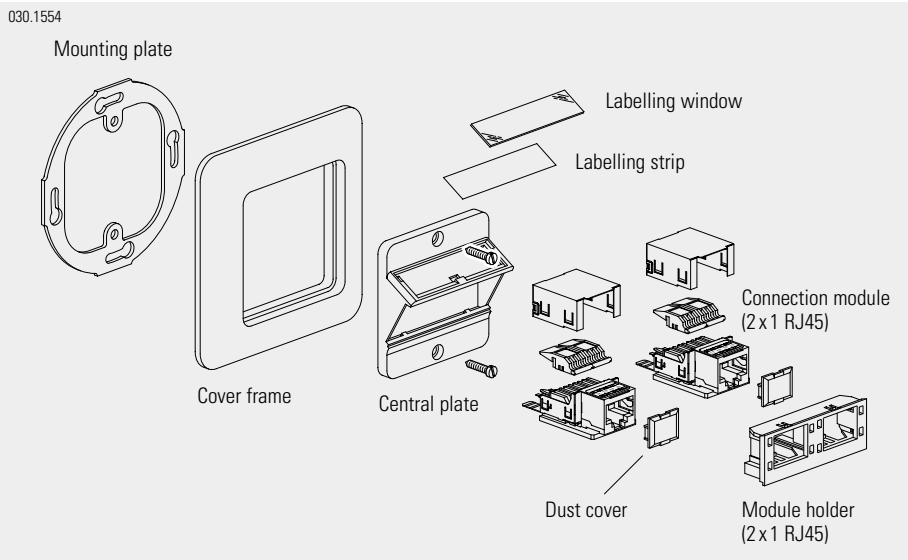
Ordering Information	Description	Packing Unit	Part Number
	<b>503 Outlet, 1 Port</b> Plastic: PC, PC+ABS Halogen-free according to DIN/VDE 0472/815 Colour: white/RAL 9010	10	R925771
	<b>503 Outlet, 2 x 1 Port</b> Plastic: PC, PC+ABS Halogen-free according to DIN/VDE 0472/815 Colour: white/RAL 9010 Colour: beige/RAL 1013	10 10	R925782 R925783
	<b>503 Outlet, 4 x 1 Port</b> For RJ45 Snap-In modules Colour: white/RAL 9010	10	R304275

Matching Modules					Matching Accessories		
1 x RJ45/s 1 x RJ45/u (1 + 2 port only)	1 x RJ45/s Cat. 6 1 x RJ45/u Cat. 6 (1 + 2 port only)	1 x RJ45 Snap-In Modul (nur 4 x 1 Port)	FO Adaptors (1 + 2 port only)	1 x RJ45 ISDN 2 x RJ45 ISDN	Security Products (1 + 2 port only)	Splash Protective Line (1 + 2 port only)	Accessories
040.0060 	010.1624 	010.2016.1 	020.0700 	020.0077 	010.0962.2 	010.2128.1 	010.0934 
010.1041 	010.1623 	010.2017.1 	030.1389 	010.1677 	030.1509 		020.0045 
Page 30	Page 30	Page 33	Page 40/139	Page 94	Page 151	Page 161	Page 127

DIN Outlets



The 50 x 50 outlets are ideal for flush installations as well as for ducts, floorboxes and service poles installations. The central plate's design allows combinations with most German circuit programmes. It is available in the version 80 x 80 too, as complete solution. Recommended depth for backbox and floorbox module holder > 70 mm.



Ordering Information	Description	Packing Unit	Part Number
	<b>50 x 50 Outlet, 2 x 1 Port</b> Plastic: ASA. Halogen-free according to DIN/VDE 0472/815.		
	Colour: white/RAL 9010 Colour: beige/RAL 1013	10 10	R306010 R306008
	<b>80 x 80 Outlet, 2 x 1 Port</b> Plastic: ASA. Halogen-free according to DIN/VDE 0472/815.		
	Colour: white/RAL 9010 Colour: beige/RAL 1013	10 10	R306006 R306004

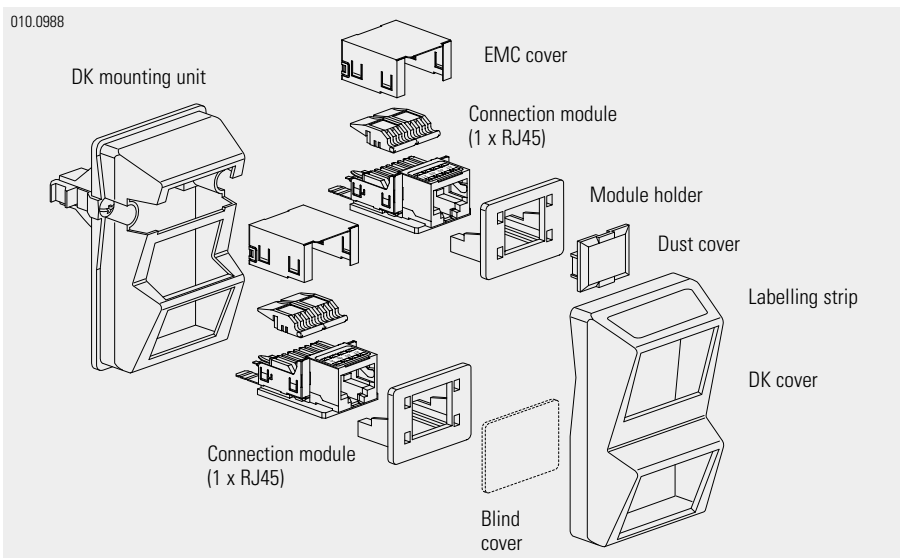
Matching Modules					Matching Accessories		
1 x RJ45/s 1 x RJ45/u	1 x RJ45/s Cat. 6 1 x RJ45/u Cat. 6	FO Adaptors			Security Products	Splash Protective Line	Accessories
040.0060	010.1624	020.0700			010.0962.2	010.2128.1	010.0934
010.1041	010.1623				030.1509		
Page 30	Page 30	Page 40			Page 151	Page 161	Page 127

TOPI014

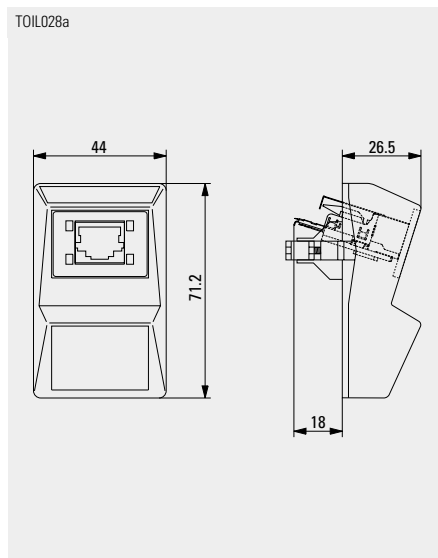


DK mounting units are designed for installation on walls or in ducts. The connection module holder is pressed into the respective openings. If no connection module is fitted, a blind cover can be inserted instead. Also available is a cover frame to ensure smooth appearance, too. The cover is slipped on after installation of the mounting unit. The snap-on mounting unit is suitable for CLIC'LINE protective housings by the supplier LK. Recommended depth for backbox and floorbox module holder > 70 mm.

010.0988



TOIL028a



## Ordering Information

## Description

## Packing Unit

## Part Number

010.0917



010.1273

**DK Mounting Unit, 2x1 Port**

Plastic: ABS. Colour: white/RAL 9010

10

R925628

**DK Mounting Unit, 2x1 Port**

Plastic: ABS. Colour: grey/RAL 7035

10

R925689

**Snap-On DK Mounting Unit, 2x1 Port**Plastic: PC+ABS. Colour: white/RAL9010  
grey/RAL 7035

10

R300412

10

R300695

**Blind Cover for DK Mounting Unit**Plastic: ABS  
Colour: white/RAL 9010

10

R925631













010.0918

010.0919

**Blind Cover for DK Mounting Unit**Plastic: ABS  
Colour : grey/RAL 7044

10

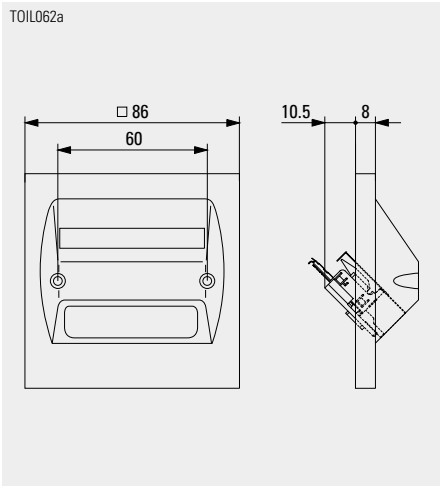
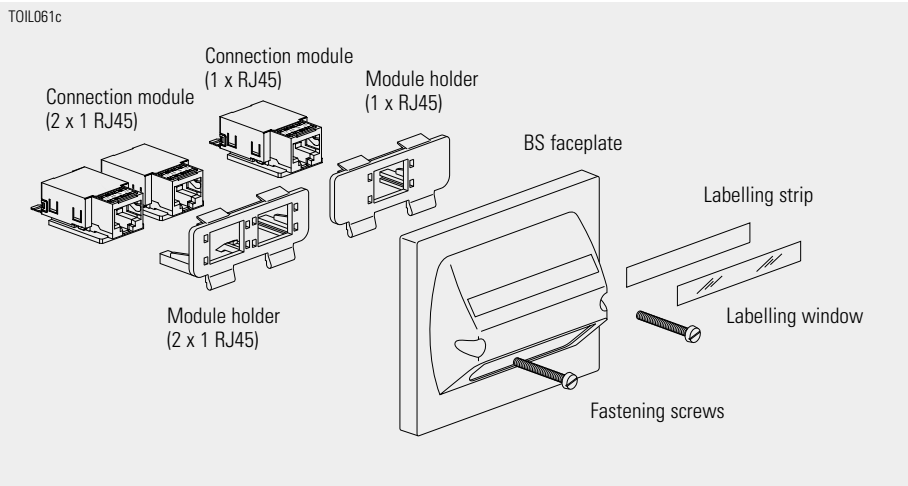
R925653

Matching Modules					Matching Accessories		
1 x RJ45/s 1 x RJ45/u	1 x RJ45/s Cat. 6 1 x RJ45/u Cat. 6	FO Adaptors			Security Products	Splash Protective Line	Accessories
040.0060  010.1041 	010.1624  010.1623 	020.0700 			010.0962.2  030.1509 	010.2128.1 	010.0934  020.1001 
Page 30	Page 30	Page 40			Page 151	Page 161	Page 127

BS Faceplates  
(British Standard)



BS Faceplates are suitable for flush and surface mounting. Surface mounting requires an additional standard surface mounting box. The connection modules take up a minimum installation depth of only 10.5 mm. The material used is UV resistant according to VO specifications. Fastening screws are included in the kit. Recommended depth for backbox and floorbox module holder > 70 mm.

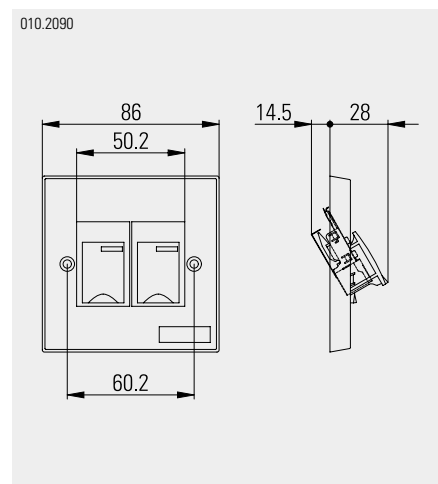
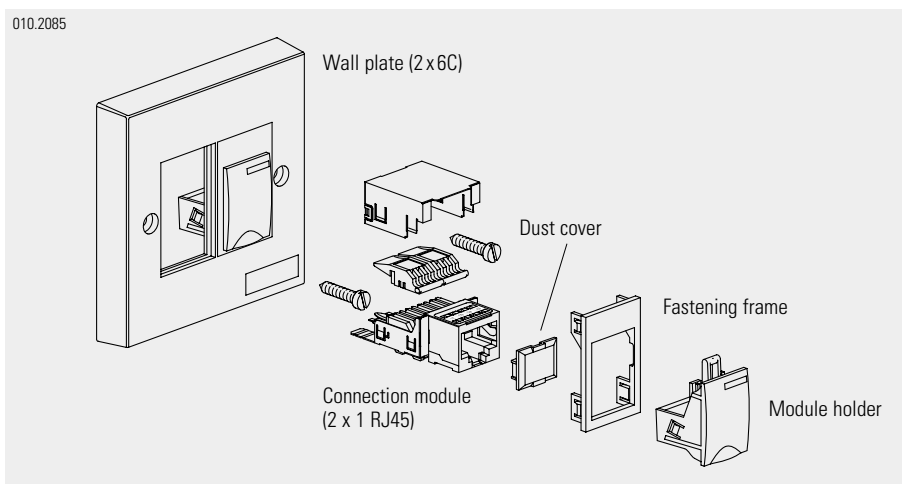


Ordering Information	Description	Packing Unit	Part Number
	<b>BS Faceplate, 1 Port</b> Plastic: ABS, PC Colour: white/RAL 9010	10	R925717
	<b>BS Faceplate, 2 x 1 Port</b> Plastic: ABS, PC Colour: white/RAL 9010	10	R925718
	<b>BS Faceplate, 4 x 1 Port</b> Plastic: ABS, PC Colour: white/RAL 9010	10	R925950

Matching Modules				Matching Accessories		
1 x RJ45/s 1 x RJ45/u	1 x RJ45/s Cat. 6 1 x RJ45/u Cat. 6	FO Adaptors	1 x RJ45 ISDN 2 x RJ45 ISDN (1 + 2 port only)	Security Products	Splash Protective Line	Accessories
Page 30	Page 30	Page 40/139	Page 94	Page 151	Page 161	Page 127



The Flap Jack module holders were specifically developed for the R&Mfreenet RJ45 module. The fact that the RJ45 module is placed horizontally into the holder reduces the space required by nearly 50% compared to standard solutions. Another welcome advantage in surface-mounted and also wall-mounted installations is the angled outlet at 45°. Moreover, when closed, the Flap Jack fits the internationally important British standard cutout (6C).



Ordering Information	Description	Packing Unit	Part Number
010.2018/010.2018.1	<b>Flap Jack Module holder (Typ 6C)</b> Plastic: PC Halogen-free according to DIN/VDE 0472/815 Colour: white Colour: black	20 20	R303155 R305702
010.2138	<b>Flap Jack Wall Plate, 86x86, 1 Port</b> Plastic: PC Halogen-free according to DIN/VDE 0472/815 Colour: white	20	R303152
010.2139	<b>Flap Jack Wall Plate, 86x86, 2x1 Port</b> Plastic: PC Halogen-free according to DIN/VDE 0472/815 Colour: white	20	R303154

Matching Modules							
1 x RJ45/s 1 x RJ45/u without Mounting Plate	1 x RJ45/s Cat. 6 1 x RJ45/u Cat. 6 without Mounting Plate						
010.2022.1 	010.2016 						
010.2023 	010.2017 						
Page 33	Page 33						

## Shuttered Fascia 25 x 50 mm

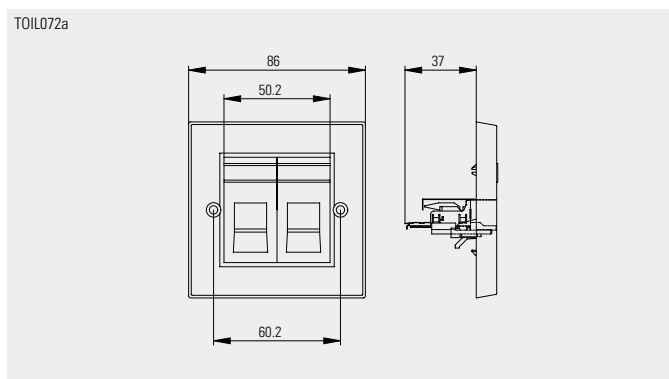
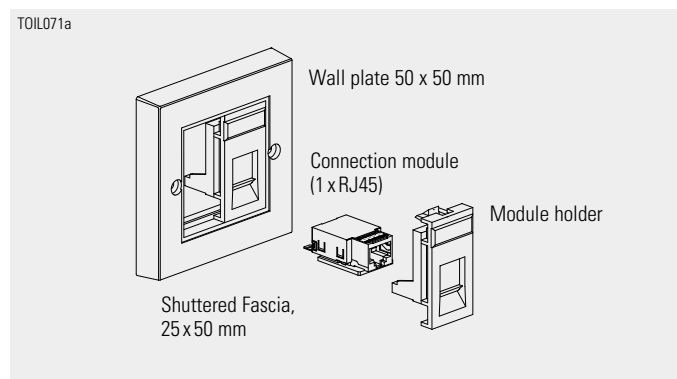



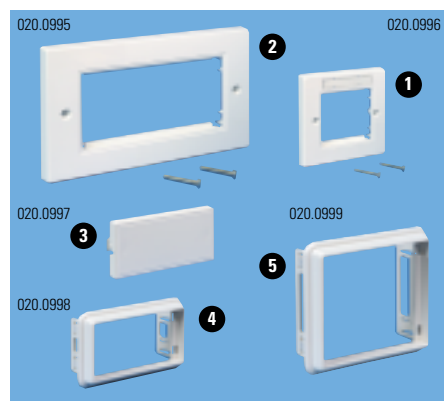

The self-locking Shuttered Fascia 25 x 50 mm is designed for 1 x RJ45 outlet connection modules.





It is designed for wall plates and floorbox module holders with 25 x 50 mm, 50 x 50 mm or 50 x 100 mm openings for flush mounting on walls, pedestals as well as metal and plastic ducts (conduits, raceways).

It is also ideal for surface mounting in backboxes and for installation on walls or ducts using the appropriate adapter collar or surface mount box.

Recommended depth for backbox and floorbox module holder > 70 mm.



Ordering Information	Description	Packing Unit	Part Number
	<b>Shuttered Fascia, 25 x 50 mm, 1 Port</b> Plastic: ABS. Certification: C-UL-US Colour: white/RAL 9010	20	R925842
	<b>Shuttered Fascia, 25 x 50 mm, 1 Port</b> Colour: black/RAL 9005	20	R302031
	<b>Shuttered Fascia, 50 x 75 mm</b> Certification: C-UL-US Colour: white/RAL 9010	20	R925943
	<b>1 Wallplate Fascia, 50 x 50 mm</b>	20	R925895
	<b>2 Wallplate Fascia, 50 x 100 mm</b>	20	R925896
	<b>3 Blind Cover Fascia, 25 x 50 mm</b>	40	R925897
	<b>4 Adapter Collar Fascia, 25 x 50 mm</b> Plastic: ABS+PC	40	R925898
	<b>5 Adapter Collar Fascia, 50 x 50 mm</b> Plastic: ABS+PC	20	R925899
 All products in white/RAL 9010.			

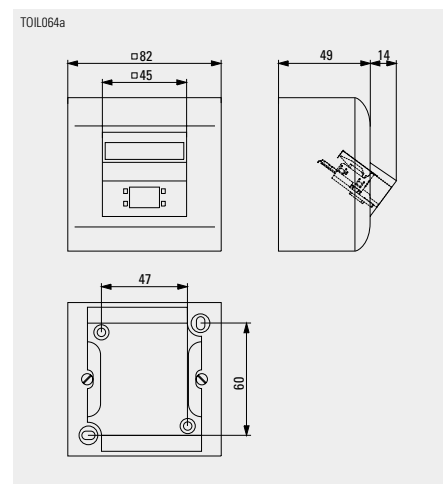
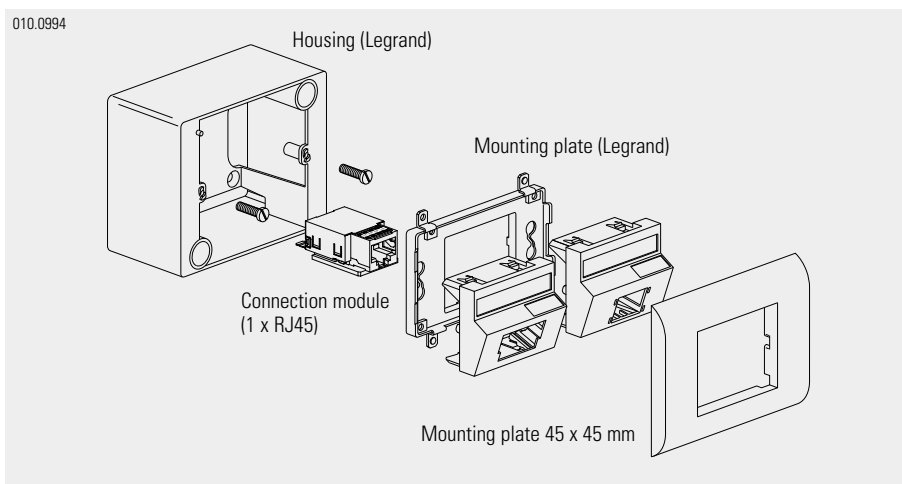
Matching Modules								
1 x RJ45/s 1 x RJ45/u	1 x RJ45/s Cat. 6 1 x RJ45/u Cat. 6							
								
								
Page 30	Page 30							



## Mounting Plates 45 x 45 mm



The Mounting Plates 45 x 45 mm are suitable for screw-less flush installation in cover frames and duct covers with 45 x 45 mm cutouts. They are suitable for surface installation on walls or ducts (with Legrand components). Recommended depth for backbox and floorbox module holder > 70 mm.



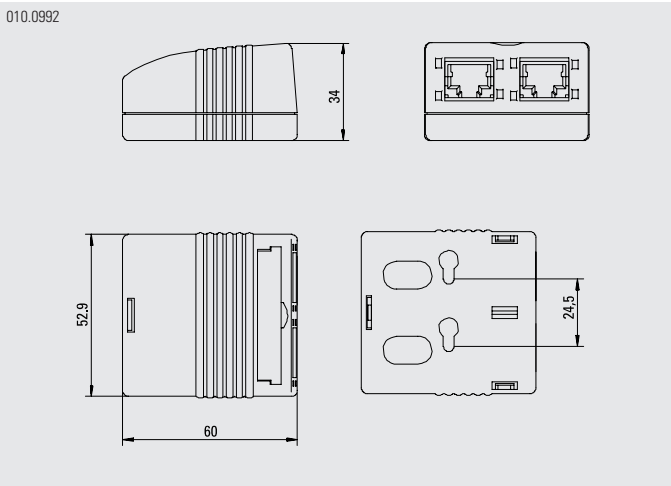
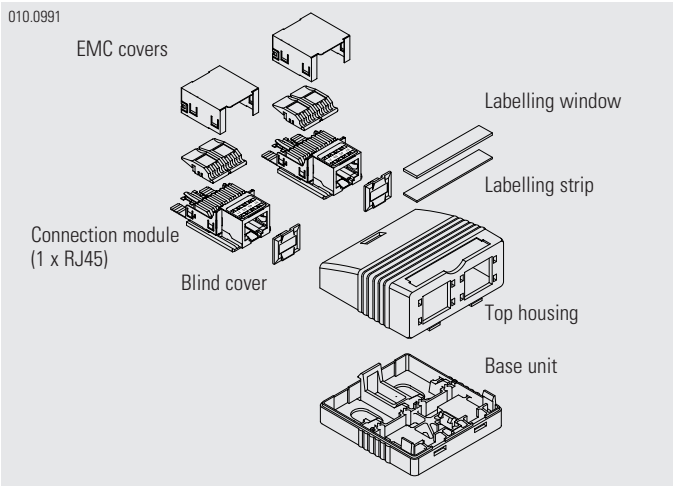
Ordering Information	Description	Packing Unit	Part Number
	<b>Mounting Plate 45 x 45 mm, 1 Port</b>	10	R925722
	<b>Mounting Plate 45 x 45 mm, 2 x 1 Port</b> Plastic: ABS Colour: white/RAL 9010	10	R925795
	<b>Mounting Plate 45 x 45 mm, 1 Port, dust cover</b>	10	R304313
	<b>Mounting Plate 45 x 45 mm, 2 x 1 Port, dust cover</b> Plastic: PC, PP Colour: white/RAL 9010	10	R304314
	<b>Dust Cover Flap, blue</b>	10	R304315
	<b>Dust Cover Flap, green</b>	10	R304316
	<b>Dust Cover Flap, red</b>	10	R304317
	<b>Dust Cover Flap, yellow</b> Plastic: PP	10	R304318

Matching Modules				Matching Accessories		
1 x RJ45/s 1 x RJ45/u	1 x RJ45/s Cat. 6 1 x RJ45/u Cat. 6	FO Adaptors (with R925722)	1 x RJ45 ISDN (with R925722)	Security Products (with R925722)	Splash Protective Line (with R925722)	Accessories
 010.1041	 010.1623			 030.1509		 020.0045
Page 30	Page 30	Page 40	Page 94	Page 151	Page 161	Page 127

Mini Surface Box



The compact Mini Surface Box allows adaptation to present and future installations. The two-part design consists of a self-locking housing and a fixing plate. Cable entry from below or from rear with knock-out section.



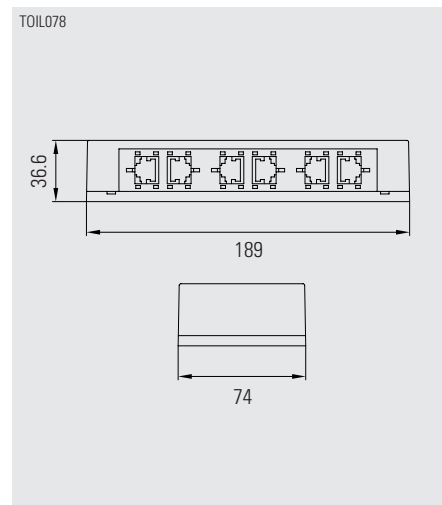
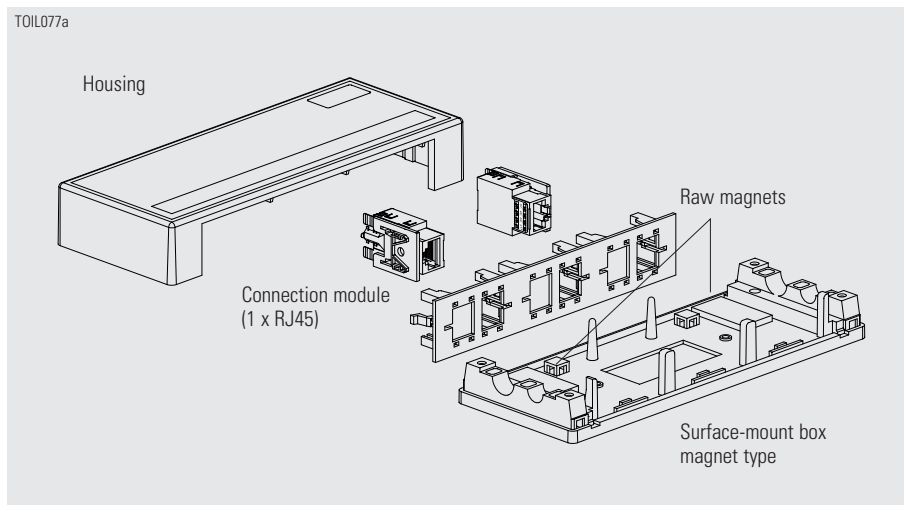
Ordering Information	Description	Packing Unit	Part Number
	<b>Mini Surface Box, 2 x 1 Port, Magnet</b>	10	R304777
	<b>Mini Surface Box, 2 x 1 Port</b> Incl. blind cover Plastic: ASA+PC Colour: white/RAL 9010	10	R925728
	<b>Mini Surface Box, 1 Port</b> Colour: cream/RAL 9001	1	R303901
	<b>Mini Surface Box, 1 Port, Magnet</b> Colour: cream/RAL 9001	1	R303902
	<b>Mini Surface Box, RJ11, 4 Pol, 1 Port</b> Incl. one RJ11 module Colour: cream/RAL 9001	1	R303903

Matching Modules					Matching Accessories		
1 x RJ45/s (2 x 1 port only)	1 x RJ45/s Cat. 6 (2 x 1 port only)	1 x RJ45/u	1 x RJ45/u Cat. 6		Security Products (2 x 1 port only)	Splash Protective Line (2 x 1 port only)	Accessories (2 x 1 port only)
Page 30	Page 30	Page 31	Page 31				
					Page 151	Page 161	Page 127





The 6 x 1 Port Compact Box is suitable for surface installation on any material. It can be screw-mounted or fixed with magnets. The magnet type can be used for mounting on magnetic metallic surfaces such as desks and frames. The hinged dust covers can serve for the coloured coding. The box conforms to the requirements of the VO fire classification.



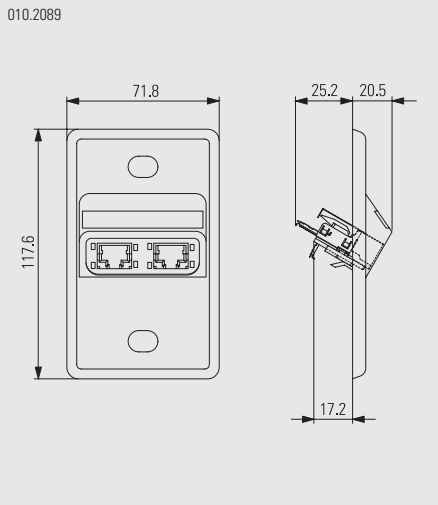
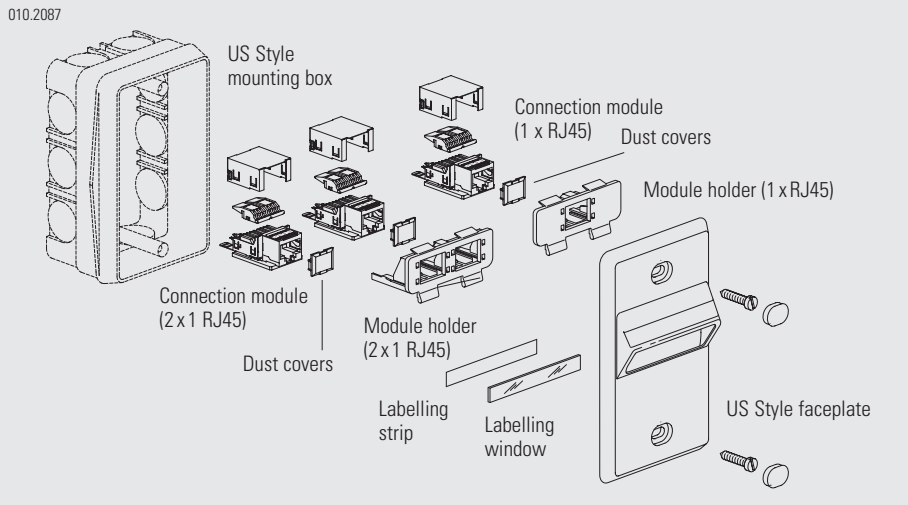
Ordering Information	Description	Packing Unit	Part Number
825893a	<b>Compact Box, 6 x 1 Port</b> Including two mounting screws and two adhesive strips of mounting tape. Plastic: ABS, PC Certification: C-UL-US Colour: white/RAL 9010	10	R925892
	<b>Compact Box "Magnet" 6 x 1 Port</b> Including two strong raw magnets. Plastic: ABS, PC Certification: C-UL-US Colour: white/RAL 9010	10	R925893



Matching Modules					Matching Accessories		
1 x RJ45/s 1 x RJ45/u	1 x RJ45/s Cat. 6 1 x RJ45/u Cat. 6				Universal Cover Plate	Hinged Dust Covers	
040.0060	010.1624				010.0934	010.1885.1	
010.1041	010.1623						
Page 30	Page 30				Page 127	Page 153	



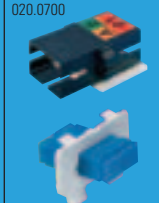

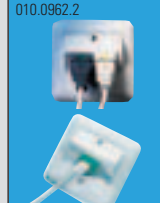


US Style Faceplate  
1 and 2x1 Port

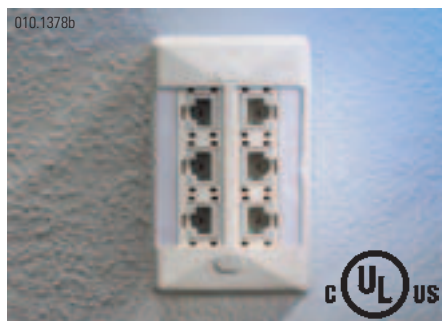


US Style Faceplates are designed for flush mounting on walls as well as for installation in ducts with metal or plastic covers.  
For surface mounting on walls and installation in ducts the US Style Mounting Box can be used (see page 119).  
These faceplates allow flush installation on backboxes with ↔ 83.5 mm (3.29 inch) mounting distance. Can be mounted on US standard backboxes with min. ↔ 50 mm (1.97 inch) mounting distance or with subframe.  
Recommended depth for backbox and floorbox module holder > 70 mm.



Ordering Information	Description	Packing Unit	Part Number
	<b>US Style Faceplate, 1 Port</b> Plastic: PC, PC+ABS Certifications: C-UL-US Colour: white/RAL 9010	10	R925757
	<b>US Style Faceplate, 2 x 1 Port</b> Plastic: PC, PC+ABS Certifications: C-UL-US Colour: white/RAL 9010	10	R925758

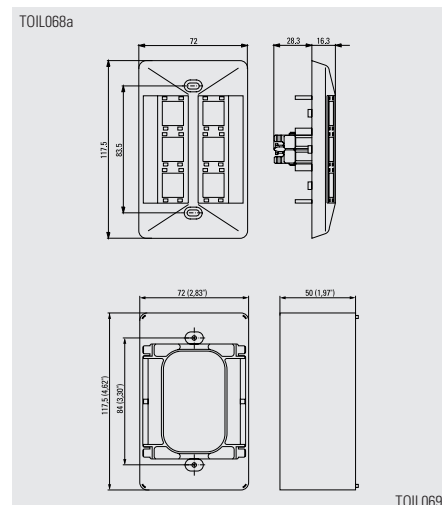
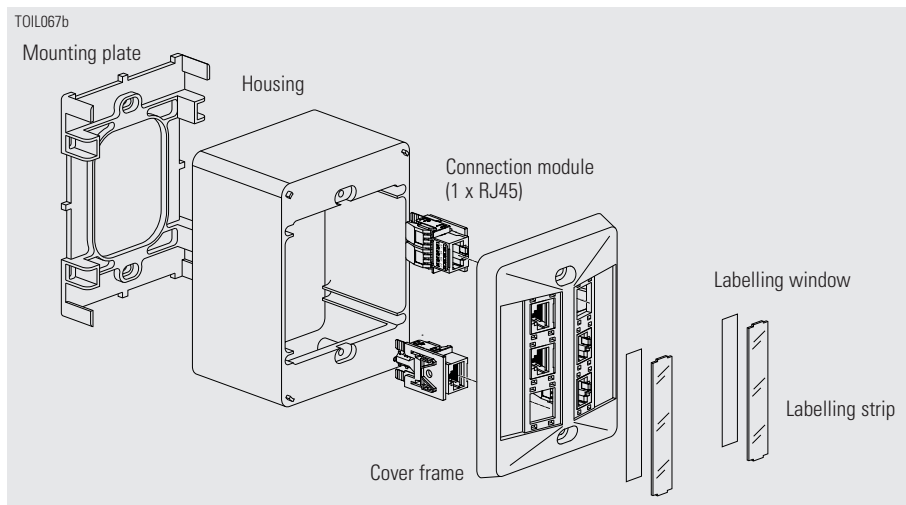
Matching Modules				Matching Accessories		
1 x RJ45/s 1 x RJ45/u	1 x RJ45/s Cat. 6 1 x RJ45/u Cat. 6	FO Adaptors	1 x RJ45 ISDN 2 x RJ45 ISDN	Security Products	Splash Protective Line	Accessories
						
040.1041	010.1623	030.1389	010.1677	030.1509		020.0045
Page 30	Page 30	Page 40/139	Page 94	Page 151	Page 161	Page 127



US Style Faceplates are designed for flush mounting on walls as well as for installation in ducts with metal or plastic covers. These faceplates can be mounted on US standard backboxes.

For surface mounting on walls and installation in ducts the backbox for the US Style Mounting Box can be used.

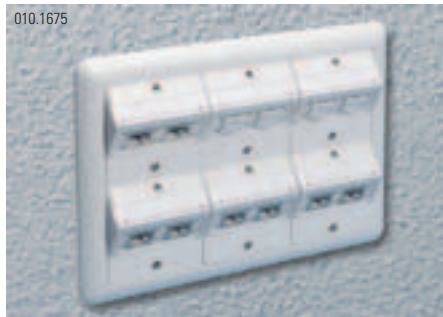
The high-impact VO plastic box conforms to C-UL-US requirements.



Ordering Information	Description	Packing Unit	Part Number
	<b>US Style Faceplate, 6 x 1 Port</b> Plastic: PC, glass-fiber reinforced Halogen-free: according to DIN/VDE 0472/815 Colour: white/RAL 9010	10	R925822
	<b>Mounting Box for US Style Faceplate</b> Plastic: PC, glass-fiber reinforced Halogen-free: according to DIN/VDE 0472/815 Colour: white/RAL 9010	10	R925824

Matching Modules					Matching Accessories		
1 x RJ45/s 1 x RJ45/u	1 x RJ45/s Cat. 6 1 x RJ45/u Cat. 6	FO Adaptors			Security Products	Splash Protective Line	Accessories
 040.0060  010.1041	 010.1624  010.1623	 020.0700			 010.0962.2  030.1509	 010.2128.1	 010.0934  020.0045
Page 30	Page 30	Page 40			Page 151	Page 161	Page 127

## Outlets 12 x 1 Port (MUTO)

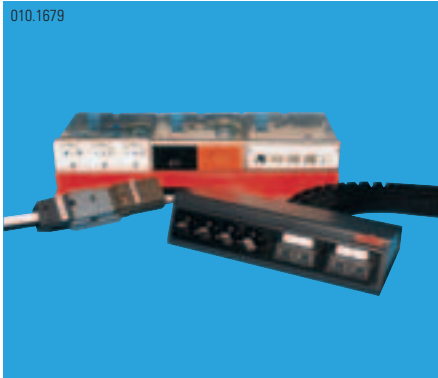


These outlets are designed for surface installation next to ducts or for flush mounted installations.  
This outlet allows data and telephone support of working groups in open-plan offices. It is also suitable for SOHO applications as small central distributor between floor distributor and working stations.

Ordering Information	Description	Packing Unit	Part Number
	<b>FM Outlet 12 x 1 Port</b> Plastic: ASA+PC Halogen-free: according to DIN/VDE 0472/815 Colour: white/RAL 9010	1	R302387
	<b>WM Outlet 12 x 1 Port</b> Plastic: ASA+PC Halogen-free: according to DIN/VDE 0472/815 WM housing: lacquered wood Colour: white/RAL 9010	1	R302388

Matching Modules					Matching Accessories		
1 x RJ45/s 1 x RJ45/u	1 x RJ45/s Cat. 6 1 x RJ45/u Cat. 6	FO Adaptors	1 x RJ45 ISDN 2 x RJ45 ISDN		Security Products	Splash Protective Line	Accessories
 040.0060  010.1041	 010.1624  010.1623	 020.0700  030.1389	 020.0077  010.1677		 010.0962.2  030.1509	 010.2128.1	 010.0934  020.0045
Page 30	Page 30	Page 40/139	Page 94		Page 151	Page 161	Page 127

010.1679



#### **mdm elektrosystem ag**

The company was founded in 1983 and became part of R&M Holding in 1990. In the course of the year 2003, the largest part of mdm products were incorporated into the R&Mfreenet product range. mdm's products are predestined for the electronic and communicative development of work places, i.e. in products for wall-duct and double-floor installations up to the desk boxes at work places.

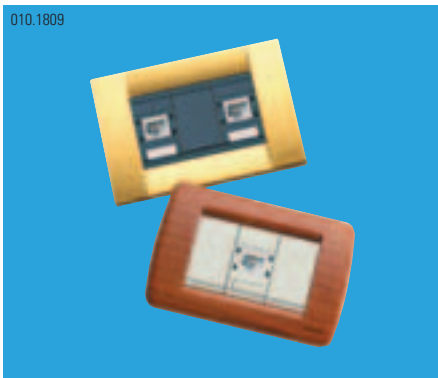
#### **Products:**

- Terminal Boxes; made of steel sheet or plastic for raised floors, wall channels mounting or as desk boxes for the mounting on or below the office desk.
- CableOutlet; a plug-in adapter (5-pole, 230/400V, 16A) to "click-onto" round TT/NYM cables, 5 x 2.5.
- Flex Channel; the in all directions flexible "protection chain" for a fast and safe installation of connection cables.

#### **Contact:**

Reichle & De-Massari AG  
Binzstrasse 31  
CHE-8622 Wetzikon  
Phone: +41 (1) 933 81 11  
Fax: +41 (1) 930 49 41  
Web: <http://www.rdm.com>

010.1809



#### **VIMAR**

VIMAR is a specialised manufacturer of cabling components for both the private and public sector. It employs more than 750 people and asserts an annual turnover of more than 120 millions Euro (2000). Their IDEA product family of exchangeable modular insert elements offers over 200 functions and is continually expanding commercially (offices, hotels, hospitals, etc.).

VIMAR and R&M are jointly working on developing computer networks with distribution point terminals. A special adapter by VIMAR enables the installation of R&M connectors in IDEA-capable frames, in any number and layout required.

#### **Contact:**

VIMAR S.p.A.  
Viale Vicenza 14  
ITA-36063 Marostica VI  
Phone: 0039/0424 488 600  
Fax: 0039/0424 488 188  
Web: <http://www.vimar.it>

## Third-Party Suppliers to R&Mfreenet Connection Module

010.1629.1



### Cimabox

Since its founding in 1989, Cimabox has been focussing on the manufacturing of products for the cabling of work places.

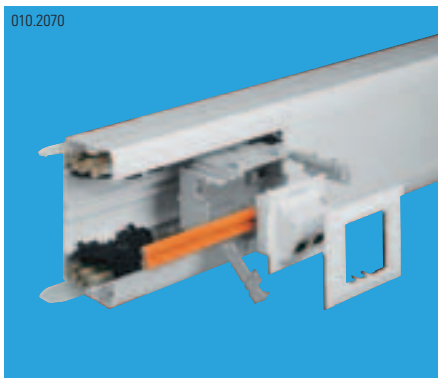
Their product assortment ranges from surface mounted outlets, flush mounted assembly units (underfloor systems) to floorboxes and power poles, which enable the customer to adjust the connection options entirely to the building's character.

The materials used (PC-ABS, flame-retardant and 100% halogen-free) as well as the operational procedures, in accordance with ISO 9001, guarantee durability and top quality of the products.

#### Contact:

Cimabox  
C/Carredera n°1, esquina C/Moli  
Polígono Industrial Gran Roca  
ESP-08107 Martorelles-Barcelona  
Phone: 0034 93 345 33 50  
Fax: 0034 93 345 36 08  
Web: <http://www.cimabox.com>  
E-mail: [cimabox@cimabox.com](mailto:cimabox@cimabox.com)

010.2070



### Tehalit

Hager and Tehalit are an international recognised supplier of future-oriented system solutions in electrical installations. Their systems fulfil the highest quality and manufacturing requirements, being of absolute flexibility and functionality, as well as being time-saving in their mounting. Innovative technologies, advanced material and modern design all blend into the development of new products, which to the users' advantage have a short time to market. This means that planners, architects and installers of electronic installations are effectively supported in implementing large projects and surmounting complex tasks.

The telecommunications outlets comply with the equipment of the current manufacturers and standards; on top, future-proof computer connections are ensured by outlets matching the R&Mfreenet Cat. 5e and 6 connection modules.

#### Contact:

Hager Tehalit Vertriebs GmbH  
Zum Gunterstal  
DEU-66440 Blieskastel  
Phone: 0049/06842 945-0  
Fax: 0049/06842 945-5666  
Web: <http://www.tehalit.com>  
E-mail: [info@hager.de](mailto:info@hager.de)

010.1813



#### **Busch-Jaeger Elektro GmbH**

Busch-Jaeger is the market leader for electronic installations in Germany looking back on over 100 years of history. They produce in Germany as well as abroad. The company is part of the ABB Group with a staff of 1250 employees in the two German locations.

Their assortment ranges from complete electric installation programmes, i.e. switches, sockets, special plug devices, series assembly equipment, dimmers and movement detectors to high-tech building system engineering, so for example their Busch-Installation-Bus® EIB and Busch Powernet®. These mean optimisation of energy and convenient central automatic control of current consumption in the private or industrial area.

Their wide selection comprises 6000 electric installation products.

#### **Contact:**

Busch-Jaeger Elektro GmbH  
P.O. Box  
DEU-58505 Lüdenscheid  
Web: <http://www.Busch-Jaeger.de>

#### **Central Sales Service:**

Phone: 0049/0180-5 66 99 00  
Fax: 0049/0180-5 66 99 09

010.1711



#### **PEHA**

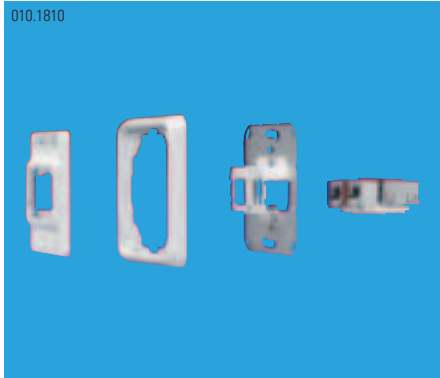
For 75 years, PEHA Paul Hochköpper GmbH & Co. KG from Germany has been a manufacturer of great tradition of exacting electric installations equipment and systems. Corporate efforts have always been focused on keeping abreast of the fast developments in the area of telecommunications engineering. Consequently, PEHA offers matching covers to nearly all present small plug connectors of various systems and suppliers, e.g. to the current PEHA flush-mounting switch programmes, Standard, DIALOG and AURA. For the double outlet modules by R&M a special cover has been developed (see opposite picture). Additionally, a version with a high, hinged lid is available, which protects both jack and plug against dust and mechanical strain.

#### **Contact:**

Paul Hochköpper GmbH & Co. KG  
Gartenstrasse 49  
DEU-58511 Lüdenscheid  
Phone: 0049/02351 185-0  
Fax: 0049/02351 276 66  
Web: <http://www.peha.de>



010.1810



### **JUNG**

For more than 90 years, JUNG has been a synonym for progress and success in electric installations. Technical innovations, top quality standard and exacting design are the driving force of the continuous further development of their electrical installations equipment and systems.

Of course, data communications technique plays a major role in JUNG programmes. Planners and architect want to work with uniform and consistent electric installations, meaning the design of switches and outlets ranges. Here, JUNG provides solutions for all surface-mounted and flush-mounted series (incl. water-proof solutions), for vertical as well as horizontal connections. Also included in JUNG programmes are various covers for Cat. 3 up to Cat. 6.

#### **Contact:**

ALBRECHT JUNG GMBH & CO. KG  
Volmenstrasse 1  
DEU-58579 Schalksmühle  
Phone: 0049/02355 806-168 (Sales Support)  
Fax: 0049/02355 806-189  
Web: <http://www.jung.de>  
E-mail: [jung-info@t-online.de](mailto:jung-info@t-online.de)

010.2092



### **Berker**

The Gebr. Berker GmbH & Co. KG was founded in 1919 and is one of the leading manufacturers of high-performance electric installation systems. Berker's switch ranges with integral house electronics, the intelligent building services management system INSTABUS EIB or the FUNKBUS SYSTEM all offer fascinating solutions. From accentuated lighting to automatic shutter control, integration of heating control and building security, up to modern communications connection techniques, Berker's switch programmes allow most favourable and balanced interior design to the very last detail.

#### **Contact:**

Gebr. Berker GmbH & Co. KG  
Klagebach 38  
DEU-58579 Schalksmühle  
Phone: 0049 (0)2355 905 610  
Fax: 0049(0)2355 905 606  
Web: <http://www.berker.de>  
E-mail: [info@berker.de](mailto:info@berker.de)



010.1720



### **Gira**

Gira was established in 1905 and employs 700 people today.

The product range covers various electronic installations equipment – from light switches, automatic switches, guards, Gira radio alarm systems, over control systems for blinds to data technology and telecommunications connections.

Furthermore, the high quality standard in all sectors confirms the company's qualification for the quality management systems (DQS) certification according to DIN ISO 9001.

#### **Contact:**

Gira  
Giersiepen GmbH & Co. KG  
Correspondence to:  
Postfach 12 20  
DEU-42461 Radevormwald

Location:  
Industriegebiet Mermbach  
Dahlienstrasse  
DEU-42477 Radevormwald

Phone: 0049 (0) 21 95 602-0  
Fax: 0049 (0) 21 95 602-339  
Web: <http://www.gira.de>  
E-Mail: [info@gira.de](mailto:info@gira.de)

010.2071



### **Merten**

This quite large company in Wiehl, Oberbergen, near Cologne, is one of the leading trademark manufacturers of electro-technical installation components, electronic products and components for the building services management system INSTABUS EIB. Ever since it was founded in 1906 innovation, quality and design were the driving forces in the traditional company.



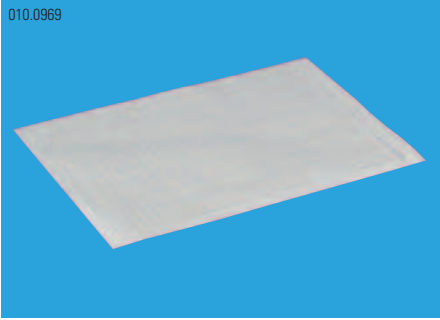
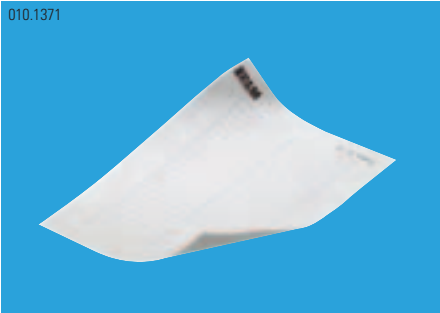
As early as 1961 the company developed the first switch based on optical design with a screw-free cover and wide rocker, initiating the trend towards large surface switches. They come in pastel colours, in strong bright colours or high-grade steel – the switch programmes by Merten keep on proving that any individual interior style can be supported in form, colour and function. Since no compromise will do when it comes to quality, functionality, and security, a special programme for each field of application has been developed. Consequently, the product range offers solutions for private residences, industrial needs, agriculture, game halls or scientific laboratories, including water-proof and even weather-proof and high-impact switch programmes for inside and outside plant applications.

#### **Contact:**


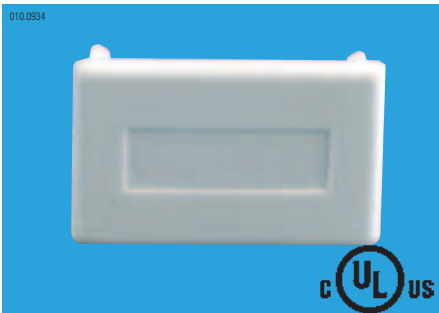
Merten GmbH & Co. KG  
Postfach 10 06 53  
DEU-51606 Gummersbach

Phone: 0049 (0)2261 702-01  
Fax: 0049 (0)2261 702-284  
Web: <http://www.merten.de>  
E-mail: [info@merten.de](mailto:info@merten.de)

## Accessories

Ordering Information	Description	Packing Unit	Part Number
020.1001 	<b>Labelling Sheet DK</b> Adhesive labelling strips with outlet logo (unlettered) for identifying 58 Mounting Units DK.	10	R925629
010.2161 	<b>Labelling Sheet 44 x 45 Mounting Plate</b> Adhesive labelling strips (unlettered) for identifying 85 45 x 45 Mounting Plates. (R304313 + R304314)	10	R303786
010.0969 	<b>Labelling Sheet Mini Surface Mount Box</b> Perforated labelling strips (unlettered) for identifying 100 Mini Surface Boxes. Can be used for following additional outlet: – 50 x 50 Outlet 2 x 1 Port – 80 x 80 Outlet 2 x 1 Port – 4 x 1 Port Outlet	10	R925759
010.1371 	<b>Labelling Sheet, US Style, 6 Port</b> Perforated labelling strips (without logo, unlettered) for the labelling of 24 US Style Faceplates 6 x 1 Port.	10	R300318

**i** Labelling software and free MS Word templates for fast and professional outlet labelling are available on our website ([www.rdm.com](http://www.rdm.com)).

Ordering Information	Description	Packing Unit	Part Number
010.0932 	<b>Labelling Sheet for Outlets</b> 84 perforated labelling strips without logo (unlettered) for the labelling of following outlets: <ul style="list-style-type: none"> <li>– FM Outlets 88 x 88 mm</li> <li>– FM Global Outlets 88 x 88 mm</li> <li>– WM Outlets 78 x 78 mm</li> <li>– DM Outlets 80 x 86 mm, CH</li> <li>– DM Outlets 80 x 86 mm</li> <li>– 503 Outlets</li> <li>– BS Faceplates</li> <li>– US Style Faceplates 1 Port and 2 x 1 Port</li> </ul>	100	R925702
010.0934 	<b>Universal Blind Cover, white</b> For covering one unused empty connection module space. To Snap-In instead of a keying system. C-UL-US certified. Colour: white/RAL9010.	100	R925719

**i** Labelling software and free MS Word templates for fast and professional outlet labelling are available on our website ([www.rdm.com](http://www.rdm.com)).



«Fiber to the home», «Fiber to the office», and «Fiber to the desk» are much more than catchwords – they have already found their way into today's planning standard. R&M offers a wide range of outlets for all current fiber optic connectors (SC, ST, SC-RJ, MT-RJ).

All duct-mounted, wall-mounted, and floorbox solutions are aligned to the customary installation material of various European manufacturers.



Products	Page
1 FO Outlets 50 x 50/80 x 86/88 x 88	130
2 FO Duct Outlets	132
3 FO Outlets (Subfloor-Floorbox)	134
4 FO Outlets Accessories	135
5 FO Outlets Module Holders	139

## FO Outlets



The telecommunications outlets of type FO Outlet, 50 x 50 mm and FO Outlet, 80 x 86 mm and 88 x 88 mm, CH, offer a wide range of advantages such as:

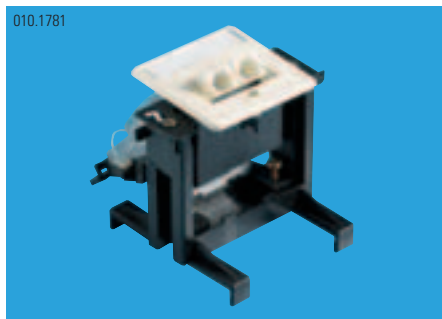
- Angled outlet of 45° for improved cable and connector relief.
- Flange fastening for various FO adaptors.
- Cable strain relief inside the outlet.
- DIN central unit 50 x 50 mm as basis within Europe.
- Adapter frame and wallplate 80 x 86 mm for various duct installations.
- Adapter frame and wallplate 88 x 88 mm for flush-mounted or 100 mm duct-mounted solutions.
- Labelling option.
- Module holder with in-built cable management making sure minimum bending radius > 20 mm is always observed.
- Ideal for pre-terminated as well as field-terminated cables.
- Suitable for various wall ducts thanks to specific mounting supports.
- Swiss versions equipped with adapter frame 88 x 88 & 80 x 86 mm.
- Adaptor design:
  - SM split zirconia ceramic alignment sleeve (ZrO2).
  - MM phosphorus/bronze alignment sleeve (PhBr).

### Ordering Information

### Description

### Packing Unit

### Part Number



#### FO Outlet 50 x 50 mm, ST

With 1 ST Duplex adaptor.  
Colour: oyster white/RAL 1013.

1

R303435

#### FO Outlet 50 x 50 mm, SC, SM FO Outlet 50 x 50 mm, SC, MM

With 1 SC Duplex adaptor each.  
Colour: oyster white/RAL 1013.

1

R303446

1


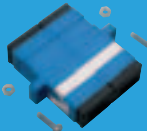


R303450

#### FO Outlets 50 x 50 mm, MT-RJ


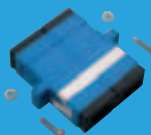


With 1 MT-RJ Duplex adaptor.  
Colour: oyster white/RAL 1013.

1

R303439

Matching Adaptors and Modules				Matching Accessories			
ST Duplex	SC Duplex	MT-RJ		Mounting Supports			
030.1385	010.0879	010.1796.2		010.1793			
							
	Page 39	Page 40		Page 136			

Ordering Information	Description	Packing Unit	Part Number
010.1781 	<b>FO Outlet 50 x 50 mm, ST</b> With 1 ST Duplex adaptor. Colour: pure white/RAL 9010.	1	R303443
	<b>FO Outlet 50 x 50 mm, SC, SM</b>	1	R303447
	<b>FO Outlet 50 x 50 mm, SC, MM</b> With 1 SC Duplex adaptor. Colour: pure white/RAL 9010.	1	R303436
	<b>FO Outlet 50 x 50 mm, MT-RJ</b> With 1 MT-RJ Duplex adaptor. Colour: pure white/RAL 9010.	1	R303440
010.1782 	<b>FO Outlet 88 x 88 mm, ST, CH</b> With 1 ST Duplex adaptor. Colour: pure white/RAL 9010.	1	R303444
	<b>FO Outlet 88 x 88 mm, SC, CH, SM</b>	1	R303448
	<b>FO Outlet 88 x 88 mm, SC, CH, MM</b> With 1 SC Duplex adaptor. Colour: pure white/RAL 9010.	1	R303437
	<b>FO Outlet 88 x 88 mm, MT-RJ, CH</b> With 1 MT-RJ Duplex adaptor. Colour: pure white/RAL 9010.	1	R303441
010.1783 	<b>FO Outlet 80 x 86 mm, ST, CH</b> With 1 ST Duplex adaptor. Colour: pure white/RAL 9010.	1	R303445
	<b>FO Outlet 80 x 86 mm, SC, CH, SM</b>	1	R303449
	<b>FO Outlet 80 x 86 mm, SC, CH, MM</b> With 1 SC Duplex adaptor. Colour: pure white/RAL 9010.	1	R303438
	<b>FO Outlet 80 x 86 mm, MT-RJ, CH</b> With 1 MT-RJ Duplex adaptor. Colour: pure white/RAL 9010.	1	R303442

Matching Adaptors and Modules				Matching Accessories			
ST Duplex	SC Duplex	MT-RJ		Mounting Supports			
030.1385 	010.0879 	010.1796.2 		010.1793 			
	Page 39	Page 40		Page 136			

## FO Outlets



The telecommunications outlets of type FO Duct Outlet offer a wide range of advantages such as:

- FO outlet to terminate 4 or 8 fibers.
- Snap-On holders for various FO adaptors.
- Angled outlet of 80° for optimum cable and connector relief.
- Ideal for pre-terminated as well as field-terminated cables. Also suitable for on-site splicing using the cable reservoir KR and the splice deposit.
- Suitable for various wall ducts.
- In certain conditions the FO Duct Outlet is also suitable for flush-mounted installation.
- Adaptor design:
  - SM split zirconia ceramic alignment sleeve (ZrO<sub>2</sub>).
  - MM phosphorus/bronze alignment sleeve (PhBr).

### Ordering Information

### Description

### Packing Unit

### Part Number



#### FO Duct Outlet, ST, SM

1

R303451

#### FO Duct Outlet, ST, MM

1

R303457

With 4 ST Simplex adaptors.  
Colour: oyster white/RAL 1013.

#### FO Duct Outlet, SC Duplex, SM

1

R303459

#### FO Duct Outlet, SC Duplex, MM

1

R303461

With 2 SC Duplex adaptors.  
Colour: oyster white/RAL 1013.

#### FO Duct Outlet, E-2000™

1

R303463

With 4 E-2000™ Simplex adaptors.  
Colour: oyster white/RAL 1013.

#### FO Duct Outlet, MT-RJ

1

R303453

With 2 MT-RJ Duplex adaptors.  
Colour: oyster white/RAL 1013.

#### FO Duct Outlet, SC-RJ



1


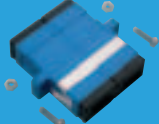



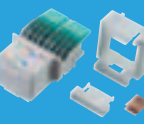
R303455

With 1 SC-RJ Duplex adaptor.  
1 port is empty, ready for SC-RJ or RJ45 modules.  
Colour: oyster white/RAL 1013.

Matching Adaptors and Modules							
ST Simplex	SC Duplex	E-2000™	MT-RJ	SC-RJ	RJ45 Snap-In		
010.0800	010.0879	030.0640.3	010.1796.2	030.1084	030.1083		
Page 38	Page 39	Page 39	Page 40	Page 40	Page 32		



Ordering Information	Description	Packing Unit	Part Number
 010.1785	<b>FO Duct Outlet, ST, SM</b>	1	R303456
	<b>FO Duct Outlet, ST, MM</b> With 4 ST Simplex adaptors. Colour: pure white/RAL 9010.	1	R303458
	<b>FO Duct Outlet, SC Duplex, SM</b>	1	R303460
	<b>FO Duct Outlet, SC Duplex, MM</b> With 2 SC Duplex adaptors. Colour: pure white/RAL 9010.	1	R303462
	<b>FO Duct Outlet, E-2000™</b> With 4 E-2000™ Simplex adaptors. Colour: pure white/RAL 9010.	1	R303452
	<b>FO Duct Outlet, MT-RJ</b> With 2 MT-RJ Duplex adaptors. Colour: pure white/RAL 9010.	1	R303454
 010.2312	<b>FO Duct Outlet, SC-RJ</b> With 1 SC-RJ Duplex adaptor. 1 port is empty, ready for SC-RJ or RJ45 modules. Colour: pure white/RAL 9010.	1	R303496
	<b>FO WM Outlet, SC Duplex, MM</b> With 2 SC Duplex adaptors. Colour: pure white/RAL 9010.	1	R304971

Matching Adaptors and Modules							
ST Simplex	SC Duplex	E-2000™	MT-RJ	SC-RJ	RJ45 Snap-In		
010.0800 	010.0879 	030.0640.3 	010.1796.2 	030.1084 	030.1083 		
Page 38	Page 39	Page 39	Page 40	Page 40	Page 32		

## FO Outlets



The telecommunications outlets of type FO Floorbox Outlet offer a wide range of advantages such as:

- FO outlet to terminate 4 or 8 fibers.
- Snap-On holders for various FO adaptors.
- Angled outlet of 80° for optimum cable and connector relief.
- Cable management is integrated in the FO Floorbox Outlet.
- Ideal for pre-terminated as well as field-terminated cables.
- Suitable for various subfloor installations (Ackermann, Niedax/Elektraplan and OBO/Bettermann).
- Combination of fiber optic and copper RJ45 possible.
- Adaptor design:
  - SM split zirconia ceramic alignment sleeve (ZrO<sub>2</sub>).
  - MM phosphorus/bronze alignment sleeve (PhBr).

### Ordering Information

### Description

### Packing Unit

### Part Number



**FO Floorbox Outlet, ST, SM**

1

R303464

**FO Floorbox Outlet, ST, MM**

1

R303471

With 4 ST Simplex adaptors.  
Colour: oyster white/RAL 1013.

**FO Floorbox Outlet, SC Duplex, SM**

1

R303473

**FO Floorbox Outlet, SC Duplex, MM**

1

R303475

With 2 SC Duplex adaptors.  
Colour: oyster white/RAL 1013.

**FO Floorbox Outlet, E-2000™**

1

R303477

With 4 E-2000™ Simplex adaptors.  
Colour: oyster white/RAL 1013.

**FO Floorbox Outlet, MT-RJ**

1

R303466

With 2 MT-RJ Duplex adaptors.  
Colour: oyster white/RAL 1013.

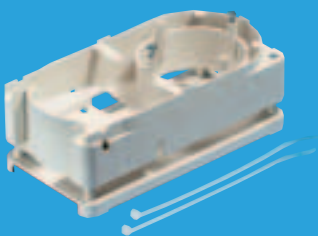

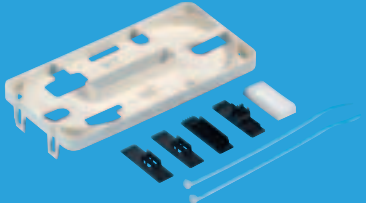
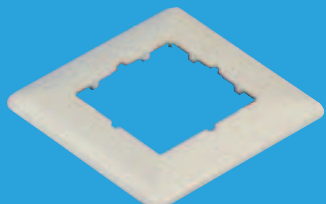

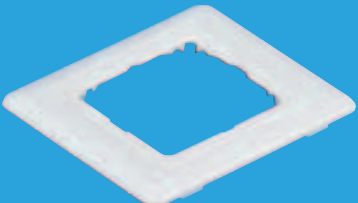
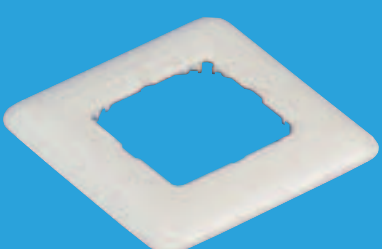
**FO Floorbox Outlet, SC-RJ**

1


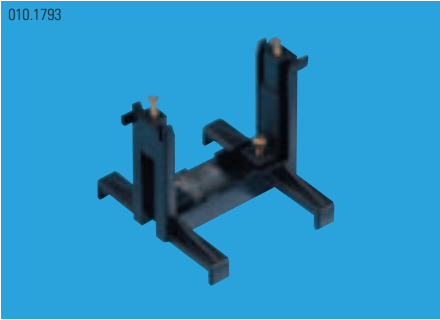

R303468

With 1 SC-RJ Duplex adaptor.  
1 port is empty, ready for SC-RJ or RJ45 modules.  
Colour: oyster white/RAL 1013.

Matching Adaptors and Modules							
ST Simplex	SC Duplex	E-2000™	MT-RJ	SC-RJ	RJ45 Snap-In		
010.0800	010.0879	030.0640.3	010.1796.2	030.1084	030.1083		
Page 38	Page 39	Page 39	Page 40	Page 40	Page 32		

Ordering Information	Description	Packing Unit	Part Number
010.1788 	<b>FO KR55 Cable Reservoir</b> 55 mm mounting depth to FO Duct Outlet. Also fitting the systems: – Tehalit «System BR» – Ackermann «te li ko» installation ducts (WIK) and installation poles (ISS).	1	R303478
	<b>FO KR50 Cable Reservoir</b> 55 mm mounting depth to FO Duct Outlet. Also fitting the system: – Tehalit «System FB».	1	R303488
010.1789 	<b>FO Splice Deposit to Cable Reservoir KR</b> Up to 4 fusion or mechanical splices with matching splice holders incl. splice reserve can be carried out.	1	R303489
010.1790 	<b>Wallplate 80 x 80 to FO Outlet</b> Dimensions: 80 x 80 mm. Colour: oyster white/RAL 1013.	1	R303490
	<b>Wallplate 80 x 80 to FO Outlet</b> Dimensions: 80 x 80 mm. Colour: pure white/RAL 9010.	1	R303491
010.1791 	<b>Wallplate 80 x 86 to FO Outlet</b> Dimensions: 80 x 86 mm. Colour: pure white/RAL 9010.	1	R303492
010.1792 	<b>Wallplate 88 x 88 to FO Outlet</b> Dimensions: 88 x 88 mm. Colour: pure white/RAL 9010.	1	R303493

## FO Outlets Accessories

Ordering Information	Description	Packing Unit	Part Number
010.1794 	<b>T-Slot Mounting Support, 50 mm, vertical</b>	1	R303479
	<b>T-Slot Mounting Support, 55 mm, vertical</b>	1	R303480
010.1793 	<b>T-Slot Mounting Support, 50 mm, horizontal</b>	1	R303494
	<b>T-Slot Mounting Support, 55 mm, horizontal</b>	1	R303495
	<b>Top Hat Rail Mounting Support, 47 mm, horizontal</b>	1	R303481
	<b>Top Hat Rail Mounting Support, 50 mm, horizontal</b>	1	R303482
	<b>Top Hat Rail Mounting Support, 52 mm, horizontal</b>	1	R303483
	<b>Top Hat Rail Mounting Support, 55 mm, horizontal</b>	1	R303484
	<b>Kleinhuis Mounting Support, 47 mm, horizontal</b>	1	R303485
	<b>Kleinhuis Mounting Support, 50 mm, horizontal</b>	1	R303486
030.1384 	<b>120 Perforated Labelling Strips</b>	10	R303635
	Without logo (unlettered) for labelling FO outlets.		



Labelling software and free MS Word templates for fast and professional FO outlet labelling are available on our website ([www.rdm.com](http://www.rdm.com)).

**Installation possibilities of FO Duct Outlet, 50 x 50 mm, in duct types, using mounting supports:**

Mounting support type			R303494	R303495	R303479	R303480	R303481	R303482	R303483	R303484	R303485	R303486	R303487
Duct system manufacturer and type:													
Tehalit	all types	horizontal	✕	◆									
Tehalit	all types	vertical			✕	◆							
Ackermann	te li ko (WIK + ISS)	horizontal	✕	◆									
Ackermann	te li ko (WIK + ISS)	vertical			✕	◆							
Niedax	GK	horizontal					✕		◆				
OBO/Bettermann	BBK, BBST, BBA	horizontal					✕		◆				
OBO/Bettermann	BS	horizontal						✕		◆			
Rehau	Signo BK, BS, BA	horizontal						✕		◆			
Nowa Plast	HS, BR Alu, FB	horizontal					✕		◆				
Nowa Plast	BR PVC, BR sheet steel	horizontal						◆					
Thorsmann	Inka, with Thorsmann- Adapter	horizontal								◆			
Kleinhuis	System 670										◆		
Kleinhuis	HKL 601											◆	
Kleinhuis	GL 601											◆	
Kleinhuis	BS											✕	◆
Kleinhuis	BSA											✕	◆
Kleinhuis	BST											✕	◆
Kleinhuis	BVS 90											✕	◆

✕ with wallplates from the duct manufacturer

◆ with wallplates from R&M or wallplates from other manufacturers

e.g. wallplate 80 x 80 to FO Outlet R303490  
 wallplate 80 x 80 to FO Outlet R303491  
 wallplate 80 x 86 to FO Outlet R303492  
 wallplate 88 x 88 to FO Outlet R303493

## FO Outlets

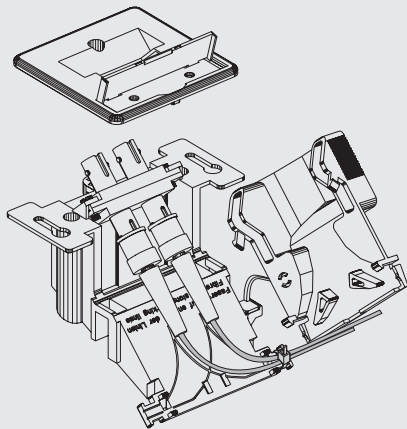
The VISIONsystem's range of FO outlets makes it possible to use FO connectors in various installation types such as:

- Wall-mounted (flush or surface).
- Duct-mounted.
- Subfloor systems (floorboxes).

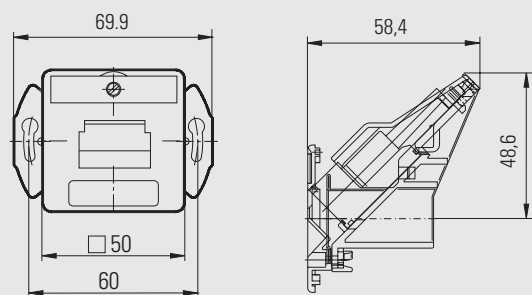
The FO Outlets permit termination of up to eight fibers through Simplex or Duplex adaptors from R&M's VISIONsystem product range.

### FO Outlet 50 x 50 mm

030.1350

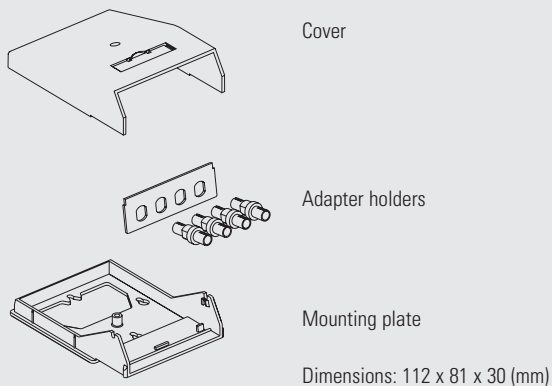


030.1353

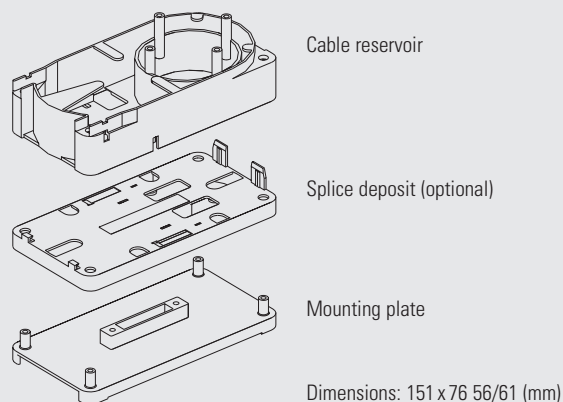


### FO Duct Outlet

030.1348

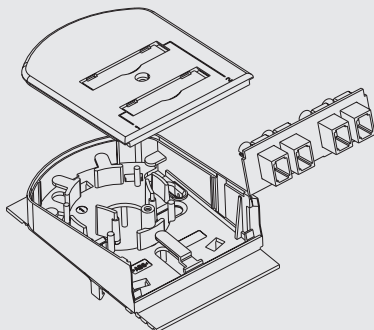


030.1349

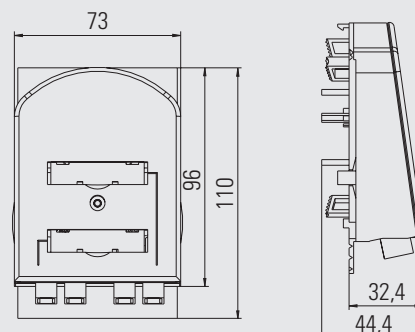


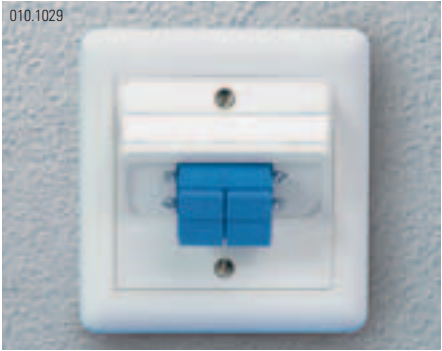
### FO Floorbox Outlet (for subfloor systems)

030.1351



030.1352

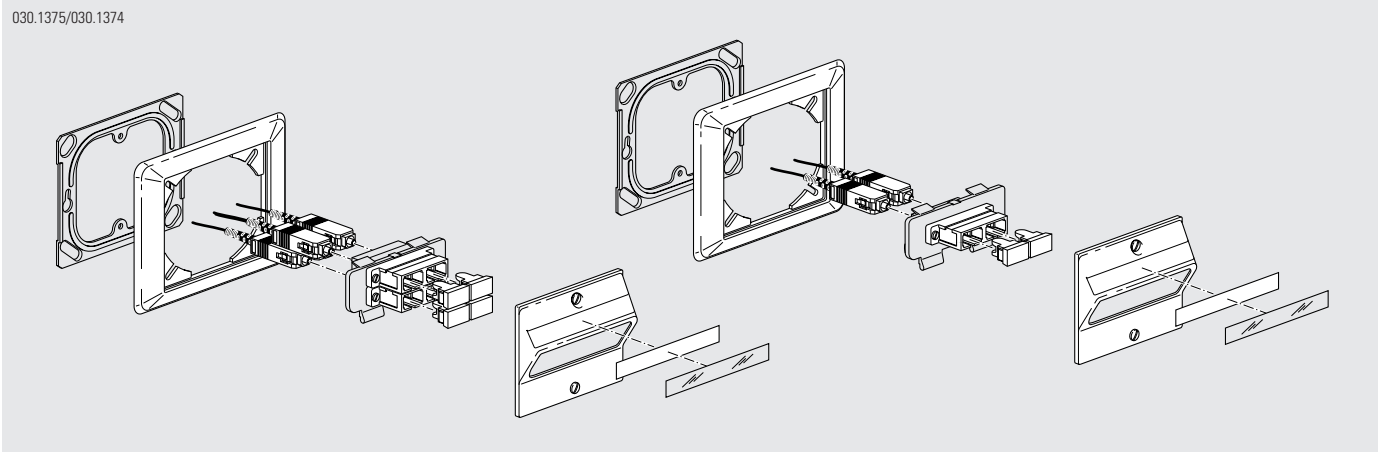


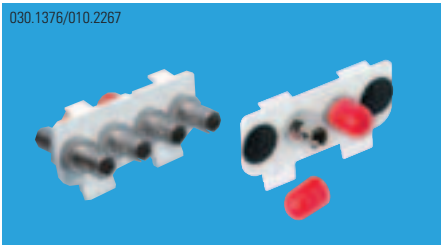
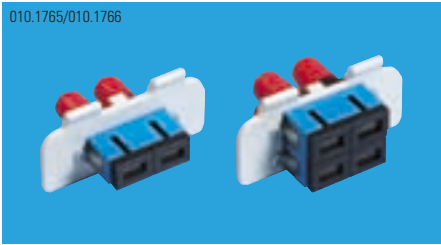
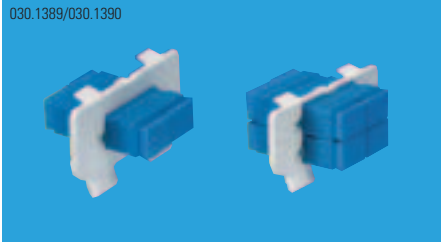


The FO outlet module holder enables a simple and fast installation of pre-assembled cables in outlets. Current RJ45 module holders can be replaced at any time by FO outlet module holders. A “Fiber to the desk” solution can thus be realised with the existing outlets.

**Features**

- Suitable for existing RJ45 telecommunications outlets.
- For pre-assembled or field-terminated cables.
- Adaptors fulfil international standards.
- No additional FO outlets required.
- Multi- and singlemode capable adaptors.



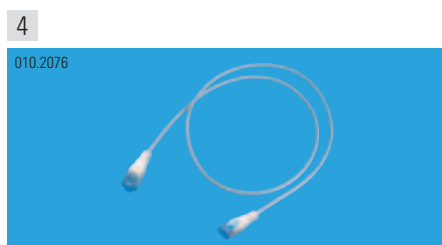
Ordering Information	Description	Packing Unit	Part Number
	<b>FO Outlet Module Holder 2 x ST</b>	1	R30811
	<b>FO Outlet Module Holder 4 x ST</b>	1	R30812
	<b>FO Outlet Module Holder 1 x SC Duplex/ST</b>	1	R30813
	<b>FO Outlet Module Holder 2 x SC Duplex/ST</b>	1	R30814
	<b>FO Outlet Module Holder 1 x SC Duplex</b>	1	R30239
	<b>FO Outlet Module Holder 2 x SC Duplex</b>	1	R30242

**i** For matching outlets please refer to pages 104–109/112 + 118 + 120.





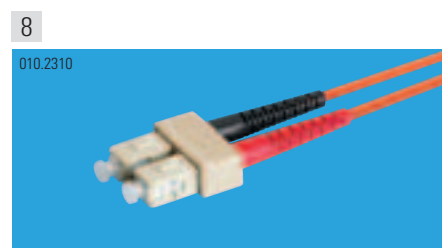
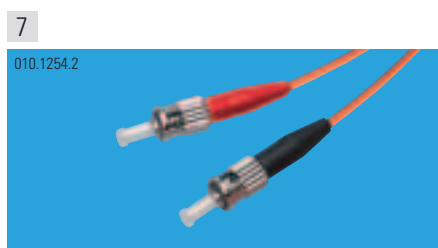
With Cat. 5e and Cat. 6 patch cords from the R&Mfreenet Cabling System absolute compatibility and highest performance with network components, patch panels, telecommunications outlets and terminal devices are guaranteed.



Products	Page
1 Introduction Cat. 5e and Cat. 6 Patch Cords	142
2 Patch Cords UTP 4P, PVC, Cat. 5e	143
Patch Cords S-FTP 4P, PVC/LSFROH, Cat. 5e	143
3 Patch Cords UTP 4P, PVC/LSFROH, shielded/unshielded Cat. 5e	144

Products	Page
4 Patch Cords UTP 4P, PVC/LSOH, Cat. 6	145
Patch Cords S-STP 4P, PVC/LSFROH, Cat. 6	145
5 Cat. 6 Connector System	146
6 Colour Coding for Cat. 5e and Cat. 6 Patch Cords	148

Patch cords are always needed when a new fiber optic system is installed, an existing network expanded or when a network is being serviced. R&M offers a wide range of patch cords with standard plugs, of standard lengths, and as hybrid solutions.



Products	Page
6 FO Patch Cords	149
7 ST	150
8 SC Duplex	150

Products	Page
9 SC-RJ	150
10 MT-RJ	150
11 E-2000™ Compact	150

## RJ45 Patch Cords, Cat. 5e and Cat. 6

### Introduction

010.2038.1



R&Mfreenet Cat. 5e patch cords are used for connecting the network equipment to patch panels and telecommunications outlets, and to cross connect between various applications and end users.

#### Features

- Comply with the requirements of relevant cabling standards (ISO/IEC 11801, EN 50173, EN 50168 and EIA/TIA 568A/B).
- Fulfil the latest testing specifications of the EIA/TIA 568A-B.2-1 (Patch Cord Qualification Test).
- Assembled with RJ45 plugs according to IEC 603.7.
- Patch cord colour distinction in various colours for transmission link identification possible.
- Shielded and unshielded versions available.
- Lengths of 0.5 – 20 m available.
- Impedance of 100 Ohm.
- PVC and LSFR0H versions available.
- New strain relief with extended functions according to TIA/EIA-568-B.1-1, colour coding.
- R&M Security System.
- R&M Environment System.
- Unleaded in accordance with EU directives.
- Directly mountable into R&M's mechanical "Data Safe Lock" coding.

010.2038



R&Mfreenet Cat.6 patch cords are used for connecting the network equipment to patch panels and telecommunications outlets. They are suitable for transmission frequencies of up to 250 MHz.

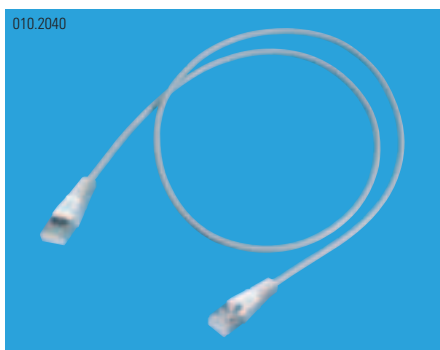
#### Features

- Fulfil the requirements of Category 6, Class E (250 MHz) according to the present standard of the ISO/IEC 11801 2nd edition.
- Fulfils the Cat. 6 values of the components standard IEC 60603-7-4. or IEC 60603-7-5 with the Cat.6 Connection Module.
- Each patch cord is tested for transmission performance.
- Can also be used as Cat.5e (backwards compatible).
- Colour distinction in various colours for service identification possible.
- New strain relief with extended functions according to TIA/EIA-568-B.1-1.
- Labelling possible on the strain relief sleeve or colour coding.
- Directly mountable into R&M's mechanical "Data Safe Lock" coding.
- Shielded and unshielded patch cords available.
- Lengths of 0.5 – 20 m available.
- Impedance of 100 Ohm.
- PVC, LSOH and LSFR0H versions available.
- R&M Security System.
- R&M Environment System
- Unleaded in accordance with EU directives.

**Patch Cord Characteristics Cat. 5e**

	UTP	S-FTP
Inner conductor diameter	Stranded copper AWG26	Stranded copper AWG26
Number of pairs	4	4
Screen 1 pair	No	No
Outer screen	No	Cu-braid + AL/polyester foil
Jacket	PVC	PVC or LSFROH
Overall diameter	5.1 mm	5.5 mm
Bend radius	25 mm	30 mm

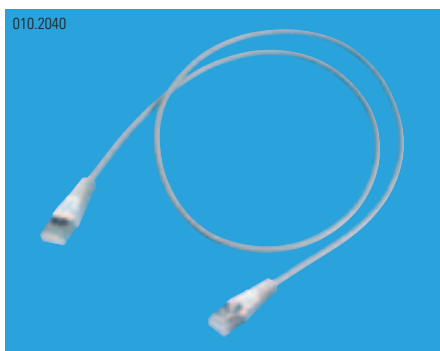
010.2040

**Patch Cords, unshielded****UTP 4P, PVC, Cat. 5e**

Connection 1:1

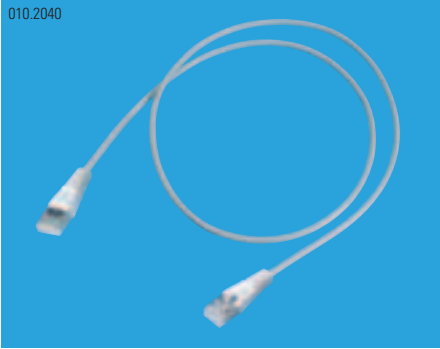
Length [m]	Jacket PVC	Packing Unit
0.5	R305014	10
1.0	R305015	10
1.5	R305019	10
2.0	R305020	10
3.0	R305021	10
5.0	R305022	10
7.5	R305023	10
10.0	R305024	10
12.5	R305025	5
15.0	R305026	5
20.0	R305027	5

010.2040

**Patch Cords, shielded****S-FTP 4P, PVC/LSFROH, Cat. 5e**

Connection 1:1

Length [m]	Jacket PVC	Jacket LSFROH	Packing Unit
0.5	R305028	R305039	10
1.0	R305029	R305040	10
1.5	R305030	R305041	10
2.0	R305031	R305042	10
3.0	R305032	R305043	10
5.0	R305033	R305044	10
7.5	R305034	R305045	10
10.0	R305035	R305046	10
12.5	R305036	R305047	5
15.0	R305037	R305048	5
20.0	R305038	R305049	5



**Patch Cords, shielded/unshielded  
S-FTP 4P, PVC/LSFROH, Cat. 5e**

Connection 1:1

Length [m]	Jacket PVC	Jacket LSFROH	Packing Unit
0.5	R305050	R305061	10
1.0	R305051	R305062	10
1.5	R305052	R305063	10
2.0	R305053	R305064	10
3.0	R305054	R305065	10
5.0	R305055	R305066	10
7.5	R305056	R305067	10
10.0	R305057	R305068	10
12.5	R305058	R305069	5
15.0	R305059	R305070	5
20.0	R305060	R305071	5

**Patch Cord Characteristics Cat. 6**

	UTP	S-STP
Inner conductor diameter	AWG 26	AWG 26
Number of pairs	4	4
Screen 1 pair	No	AL/polyester foil
Outer screen	No	Cu-braid
Jacket	PVC or LSOH	PVC or LSFROH
Overall diameter	5.1 mm/5.6 mm	5.5 mm/6 mm
Bend radius	25 mm	30 mm

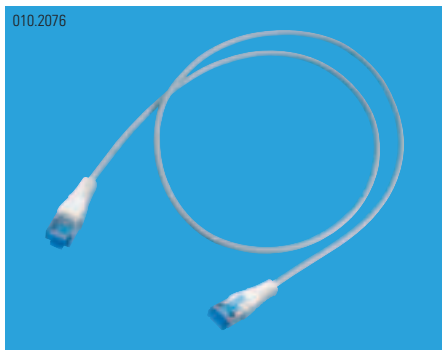
010.2076

**Patch Cords, unshielded  
UTP 4P, PVC/LSOH, Cat. 6**

Connection 1:1

Length [m]	Jacket PVC	Jacket LSOH	Packing Unit
0.5	R302298	R302309	10
1.0	R302299	R302310	10
1.5	R302300	R302311	10
2.0	R302301	R302312	10
3.0	R302302	R302313	10
5.0	R302303	R302314	10
7.5	R302304	R302315	10
10.0	R302305	R302316	10
12.5	R302306	R302317	5
15.0	R302307	R302318	5
20.0	R302308	R302319	5

010.2076

**Patch Cords, shielded  
S-STP 4P, PVC/LSFROH, Cat. 6**

Connection 1:1

Length [m]	Jacket PVC	Jacket LSFROH	Packing Unit
0.5	R302320	R302331	10
1.0	R302321	R302332	10
1.5	R302322	R302333	10
2.0	R302323	R302334	10
3.0	R302324	R302335	10
5.0	R302325	R302336	10
7.5	R302326	R302337	10
10.0	R302327	R302338	10
12.5	R302328	R302339	5
15.0	R302329	R302340	5
20.0	R302330	R302418	5

## Cat. 6 Connector System

### R&M RJ45 acc. to IEC 60603-7-X

010.2076.1

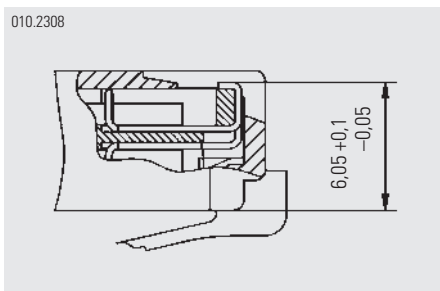


- Standard basis: IEC 60603-7 RJ45
- Categories 5 + 6; CD ISO/IEC 11801: April 2001 IEC 60603-7-1 to 5
- EN 50173: Aug. 2001 (mated connection)
- EIA/TIA 568B:2001

#### Features

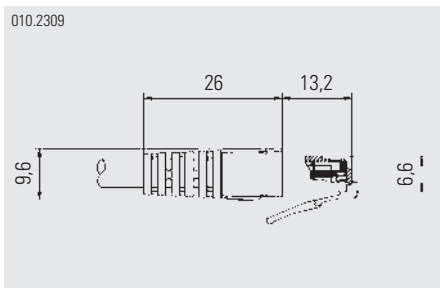
- Guaranteed constant. Contact height 6.00 mm (fixed contact).
- Contact resistance of insulation displacement contacts is up to 10 times better than penetration contacts (better long-term stability).
- Multiple overstretching of catch possible (up to 10 times).
- Wire/stranded cable can be wired with the same connector.
- Wide range of conductor diameters can be wired.
- Reproducible and stable transmission values.
- Excellent, round strain relief (e.g. not affecting the data cable's shape).
- Compact design.
- Backwards compatible.

010.2308



Contact height in R&M's connector is absolutely consistent due to design and assembly.

010.2309



#### Strain relief:

The new R&M strain relief fulfils the TIA/EIA-568-B.1-1 requirements.

- Narrow
- Compact
- Can be lined up
- Coding option
- Labelling window
- Radius limit at 8 mm
- Available without logo
- Colour RAL 9010

010.2076.1



### Cat. 6 Connector Data Sheet

IEC type designation: IEC-60603-7-X C8 MD-E11-1

#### Mechanical Data

Poles	8
Contact material	Bronze (CuSn6)
Contact surface	> 1.2 µm gold over 1.2 µm nickel
Connector insulation material	Polycarbonate (UL-94-V0)
Min. mating cycles	> 1000
Connection technique	Insulation displacement method, acc. to 60352-4
IDC surface treatment	Tin-plated, approx. 5 µm

#### Technical Data

Admissible wire Ø	0.4 mm (AWG26/1 – 0.5 mm (AWG24/1)
Admissible strand wire Ø	(AWG28/7) – (AWG24/7) (0.09 – 0.22 mm <sup>2</sup> )
Admissible insulation Ø	– 1.25 mm max.
UTP cable jacket Ø	4.5 mm – 6.5 mm
S-FTP cable jacket Ø	4.5 mm – 6.2 mm
S-STP cable jacket Ø	4.5 mm – 6.2 mm
Wire strain relief	Through plastic ribs
Cable strain relief	Through crimping > 200 N (cable geometry round crimping)
Shield bonding	Large surface crimping 360° (on cable)
Shield material	Brass (CuZn), hot-dip tinned 3 µm
Wiring	In pairs (no splitting)
Tin-coating	Unleaded
Suitable for ribbon cables	No
Suitable for round cables	Yes

#### Electrical Data

Contact resistance (wire – IDC)	< 1 mΩ
Contact resistance (strand – IDC)	< 5 mΩ
Connector contact	< 10 mΩ with R&M Cat. 6 socket
Connector shield	< 20 mΩ
Insulation resistance (100 V)	> 500 MΩ
Dielectric strength (contact – contact)	> 1000 V, 1 min.
Dielectric strength (shield – contact)	> 1500 V, 1 min.
Nominal current	1.75 A 20°

#### Application and Certification

Mechanical, electrical and transmission characteristics (measured at 20°).

Colour Coding for Patch Cords



The colour coding clips are available in 8 colours and allow you to mark and identify your patch cords in correspondence to the pin assignment or the corresponding network service. The colour coding is snapped onto the strain relief sleeves in no time, and swiftly exchanged in case of changes.

Features

- Easy and clearly visible identification of the corresponding network service.
- Exchangeable and re-usable colour coding.
- Designated field for labelling or logo.
- Halogen-free material.

Ordering Information

Description

Packing Unit

Part Number



Colour Coding, anthracite

20

R302342

Colour Coding, blue

20

R302343

Colour Coding, brown

20

R302344

Colour Coding, yellow

20

R302345

Colour Coding, grey

20

R302347

Colour Coding, green

20

R302348

Colour Coding, red




20

R302349

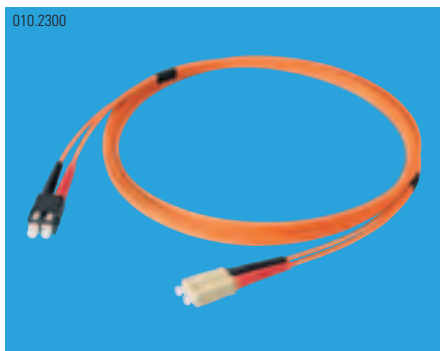
Colour Coding, violet

20

R302420

Matching Accessories								
Safe Clip	RJ45 Keying System "Data Safe Lock"	Splash Protective Line						
010.1910.1	010.0962.2	010.2128.1						
								
Page 157	Page 151	Page 161						





Interconnection of active network components or connection to the patch panel is by means of FO patch cords.

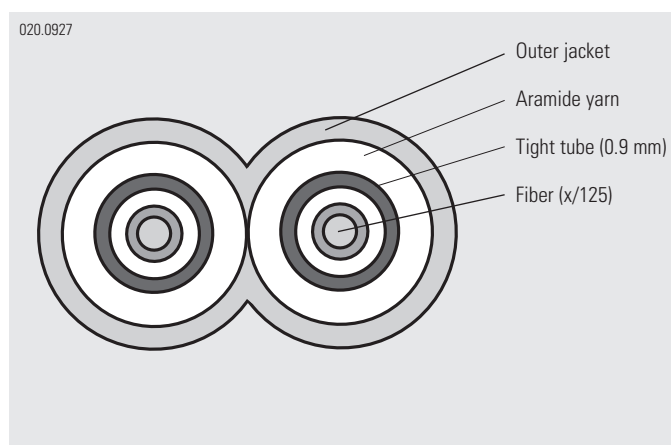
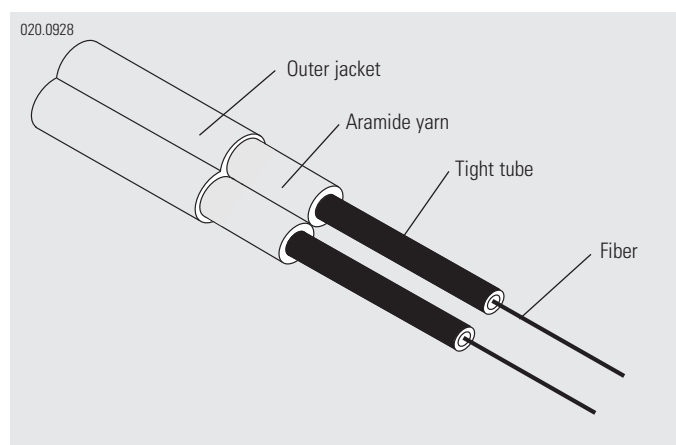
#### Features

- Available in various lengths.
- Duplex patch cord.
- LSZH cable jacket.
- Various connector types and hybrid cables available.
- Fiber quality OM1 (62.5/125) and OM2 (50/125).
- Typical attenuation
  - < 0.35 dB with ST, SC, E-2000™
  - < 0.5 dB with MT-RJ

#### Technical data of the single fiber cable

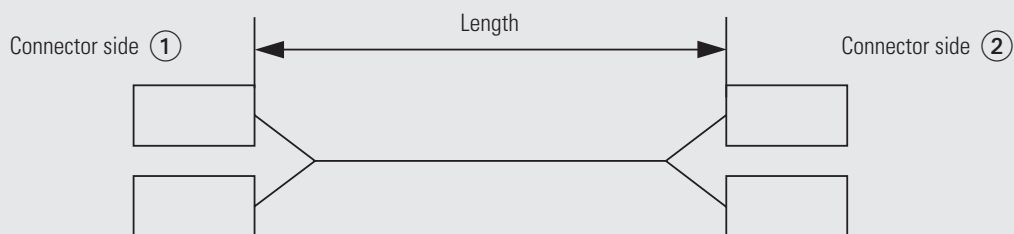
		Single-fiber connector	MT-RJ connector
Number of fibers	–	2	2
Weight [kg/km]	–	20	7
Diameter (D) of the cable [mm]	–	2.8 x 5.7	1.6 x 3.5
Max. tensile strength, during installation [N]		150	150
Min. bending radius, during installation [mm]	–	30 mm	50 mm
Min. bending radius, when installed [mm]	–	60 mm	30 mm
Fire test	IEC 60332-3	✓	✓
Temperature range [°C], when installed	–	– 5 to + 70	– 5 to + 70
Temperature range [°C], during storage	–	– 25 to + 70	– 20 to + 70

#### FO Duplex Patch Cord



## F0 Patch Cords

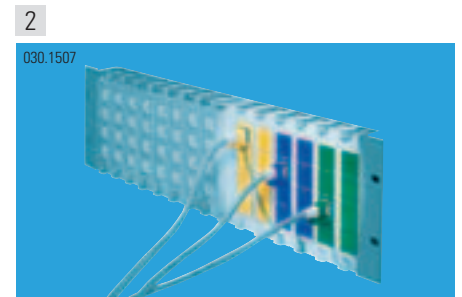
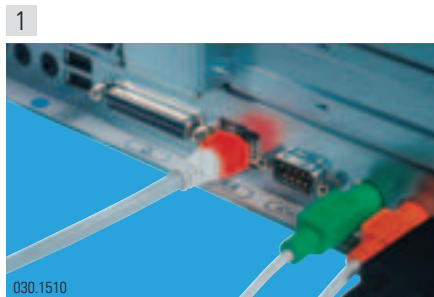
030.1371



<div>Connector side ②</div> <div>Connector side ①</div>		010.1254.2		010.2310		020.0706.2		010.1763.1		010.2142		
		<div>ST</div> <div>50/125 (OM2) 62,5/125 (OM1)</div>		<div>SC Duplex</div> <div>50/125 (OM2) 62,5/125 (OM1)</div>		<div>SC-RJ</div> <div>50/125 (OM2) 62,5/125 (OM1)</div>		<div>MT-RJ</div> <div>50/125 (OM2) 62,5/125 (OM1)</div>		<div>E-2000™ Compact</div> <div>50/125 (OM2) 62,5/125 (OM1)</div>		
<div>010.1254.2</div> <div>ST</div>		1 m	R30635	R30640								
		2 m	R30636	R30641								
		3 m	R30637	R30642								
		5 m	R30639	R30644								
<div>010.2310</div> <div>SC Duplex</div>		1 m	R303970	R303975	R303980	R303985						
		2 m	R303971	R303976	R303981	R303986						
		3 m	R303972	R303977	R303982	R303987						
		5 m	R303974	R303979	R303984	R303989						
<div>020.0706.2</div> <div>SC-RJ</div>		1 m	R300131	R30591	R300121	R300126	R300116	R30581				
		2 m	R300132	R30592	R300122	R300127	R300117	R30582				
		3 m	R300133	R30593	R300123	R300128	R300118	R30583				
		5 m	R300135	R30595	R300125	R300130	R300120	R30585				
<div>010.1763.1</div> <div>MT-RJ</div>		1 m	R302222	R302227	R303992	R303997	R302243	R302248	R304002	R304007		
		2 m	R302223	R302228	R303993	R303998	R302244	R302249	R304003	R304008		
		3 m	R302224	R302229	R303994	R303999	R302245	R302250	R304004	R304009		
		5 m	R302226	R302232	R303996	R304001	R302247	R302252	R304006	R304011		
<div>010.2142</div> <div>E-2000™ Compact</div>		1 m	R304012	R304017	R304026	R304031	R304036	R304041	R304046	R304051	R304056	R304061
		2 m	R304013	R304018	R304027	R304032	R304037	R304042	R304047	R304052	R304057	R304062
		3 m	R304014	R304019	R304028	R304033	R304038	R304043	R304048	R304053	R304058	R304063
		5 m	R304016	R304021	R304030	R304035	R304040	R304045	R304050	R304055	R304060	R304065

Top-grade security has become an absolute must for today's networks, and they couldn't be without it anymore.

With its new and innovative security products R&M closes all the security gaps your network could have. Thanks to the modularity of the different security products R&M has solutions ready for all of your individual security requirements.



Products	Page
1 Introduction R&M Security System	152
2 Security Level 1 Products	153
3 Security Level 2 Products	154
4 Security Level 3 Products	156

### R&M's modular security system

Network security is rapidly gaining in importance, turning into a deciding factor for the future of entire companies. Neutral studies prove that 70% of all network failures and crashes result from faulty cabling infrastructure or erroneous manipulation of connecting cables. When evaluating the passive cabling system it is important to carefully check if security aspects are integrally supported and easily implemented. R&M is an expert in this field and offers manifold solutions with new, innovative and patented products.

**Security Level 1:** The optical colour coding supports correct connecting of the respective cables. The colour coding clips are easily applied to the connection cables and ports (outlets, patch panels).

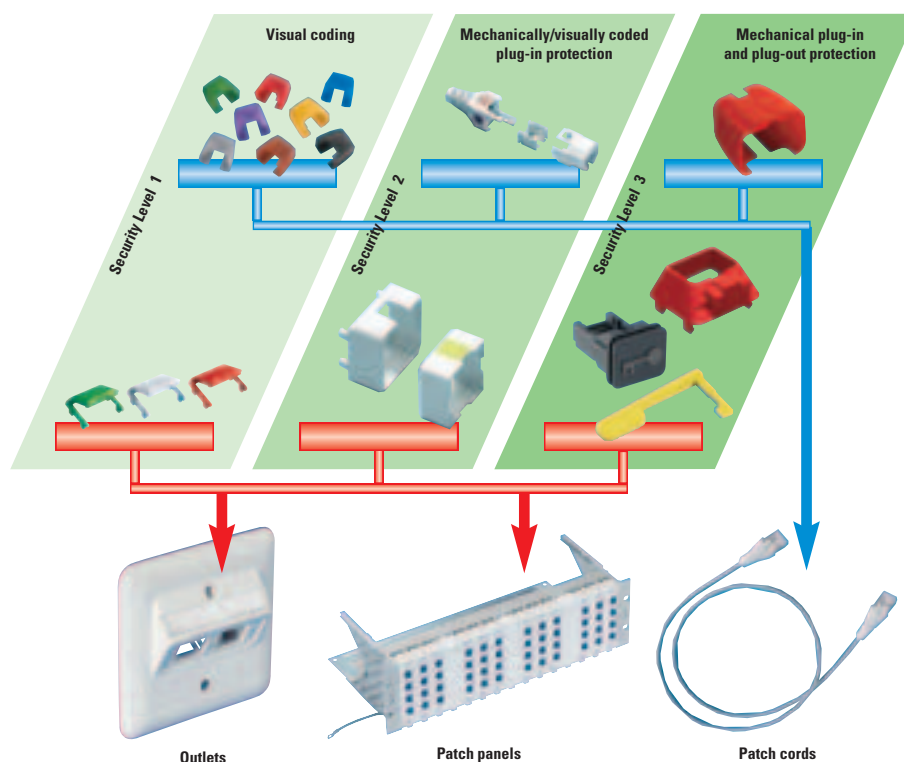
**Security Level 2:** The patented mechanical-visual coding ensures security on a mechanical level, effectively preventing any wrong connecting of a cable to a wrong port right from the start.

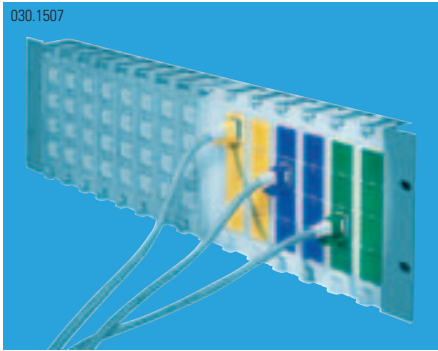
**Security Level 3:** This security level even adds a third dimension. The patented products guarantee secure network connections of the future. These connections can only be released by trained and authorised people. And as a new feature an authorised access to a port can be realised.

### Features

- Innovative products for three levels of security requirements.
- Exchangeability thanks to R&M's modularity.
- No tools needed to mount the security products
- All the products can be retrofitted to the R&M cabling system at a later stage.

R&M's security system – modularity overview: tree structure of the different products





### Security Level 1 (visual colour coding)

The optical colour coding supports correct connecting of the respective cables. The colour coding clips are easily applied to the connection cables and ports (outlets, patch panels). When applications are being changed within the network, the already positioned colour coding can be just as easily and tool-free exchanged with other colours.

#### Features

- Easy and clearly visible identification of the corresponding network service.
- Exchangeable and re-usable colour clips.
- Designated field for labelling or logo.
- Can be directly retrofitted (outlets and patch panels with R&M smartholes).
- Tool-free mounting.
- C-UL-US certified.
- Halogen-free material.

### Ordering Information

### Description

### Packing Unit

### Part Number



### Hinged Dust Covers

Dust cover and colour coding in one product.  
 For outlets and patch panels.

Colour: anthracite	10	R305685
blue	10	R305686
brown	10	R305687
yellow	10	R305688
grey	10	R305689
green	10	R305690
red	10	R305691
violet	10	R305692
white	10	R305693

Colour coding for patch cords	Colour coding clips for 24 port patch panel
010.1696 	010.1713 
Page 148	Page 49

010.0962.2



### Security Level 2 (mechanical-visual plug-in protection)

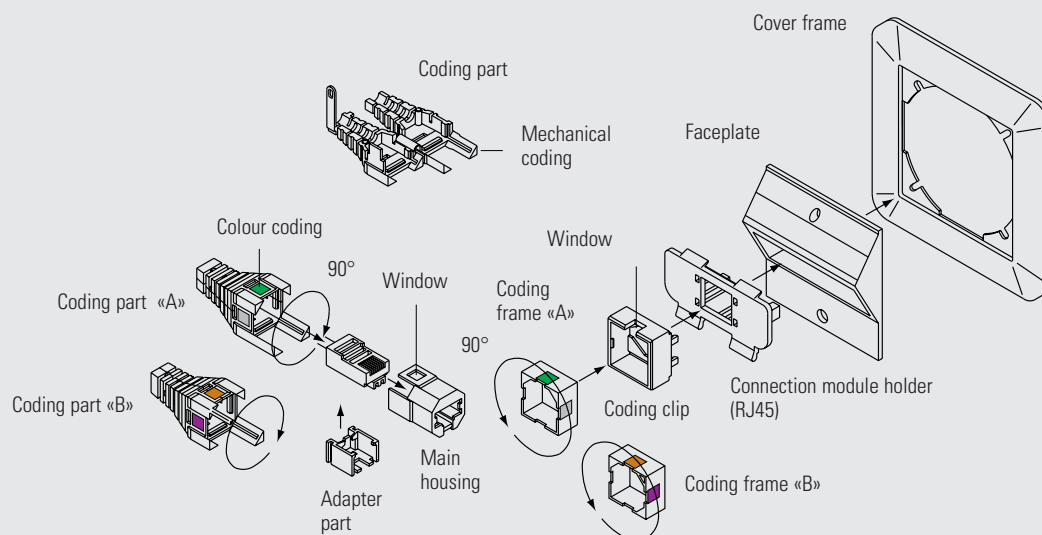
This patented mechanical-visual «Date Safe Lock» provides mechanical plug-in protection. Consequently, any wrong connection of cable to a wrong port becomes impossible right from the start. Uncertain states in the network are prevented sensitive network types effectively protected.

The erroneous connection of a Token Ring work station to the telephony port for example is not possible anymore.

#### Features

- Protection against electronic damages or network malfunctions due to wrongly connected terminal devices.
- Mechanical and optical coding options.
- Eight coding possibilities.
- Tool-free mounting onto connectors, patch panels, and outlets.
- Subsequent direct mounting also possible (to outlets and patch panels featuring R&M smarholes).
- Strain relief for patch cords integrated.
- C-UL-US certified.
- Halogen-free material
- Patented.

KSIL001

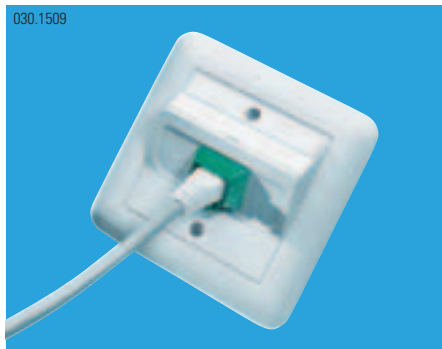


### Subsequent coding possible

**Outlet:** The coding frame of the outlet's coding is marked with a colour on each side. It is snapped onto the outlet together with the coding clip. A turning of the coding frame by 90° shifts the angled corners' position, the window showing a different colour with every turn. This means that the same coding allows four coding options. The colours can be freely assigned to any service.

**Connector:** The same principle applies to the coding of the fully assembled RJ45 connector. By snapping the coding part on and by turning it the window in the main housing shows the colours. The adapter part is only needed with certain connector types (DDK, AMP).

Ordering Information	Description	Packing Unit	Part Number
<p>020.0974</p>  <p>UL US</p>	<p><b>Colour Coding «A» for RJ45 Connectors, anthracite</b>            Colour code: blue, red, green, anthracite.            Kit comprises: coding part, adapter part, main housing.</p>	20	R25432
<p>020.0975</p>  <p>UL US</p>	<p><b>Colour Coding «A» for RJ45 Outlets, anthracite</b>            Colour code: blue, red, green, anthracite.            Kit comprises: coding clip and coding frame.</p>	20	R25107
<p>020.0977</p>  <p>UL US</p>	<p><b>Colour Coding «B» for RJ45 Connectors, white</b>            Colour code: yellow, brown, violet, white.            Kit comprises: coding part, adapter part, main housing.</p>	20	R25677
<p>020.0976</p>  <p>UL US</p>	<p><b>Colour Coding «B» for RJ45 Outlets, white</b>            Colour code: yellow, brown, violet, white.            Kit comprises: coding clip and coding frame.</p>	20	R25676



Patented Plug Guard – the connection is secure and can only be released with the matching key.

### **Security Level 3 (mechanical plug-in/plug-out protection)**

These patented products guarantee to give network connections a secure future. A protective sleeve, the Plug Guard, requires a special key to release the connection, so that a connecting cable can never again be inadvertently unplugged. Security is further enhanced with R&M's Safe Clip, a special brightly coloured device that also rules out accidental disconnection. Thanks to the Safe Clip the connecting cables are now also protected on active equipment-side. Once secured these connections can only be released by trained and authorised people. Any risk of data loss is quite simply erased. Now even an authorised access to a port can be realised, with the newly developed Plug Guard insert (Jack Guard).

#### **Features (Plug Guard)**

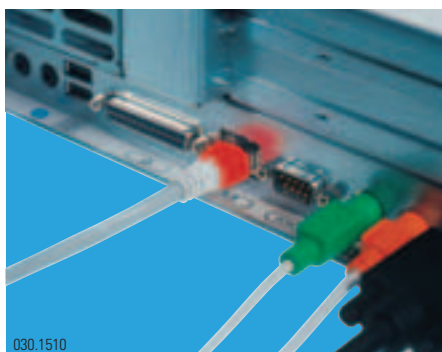
- Tool-free mounting onto outlets and patch panels.
- Available in 3 colours.
- Subsequent direct mounting also possible (to outlets and patch panels featuring R&M coding holes).
- Connection can only be released with the matching key.
- C-UL-US certified.
- Halogen-free material.
- Patented.



Plugged on Jack Guard – impossible to plug in a patch cord now.

#### **Features (Jack Guard)**

- Tool-free mounting onto Plug Guard.
- Can be mounted at a later point.
- The port is protected from unauthorised access.
- The Jack Guard can only be released with the matching key.
- Halogen-free material.

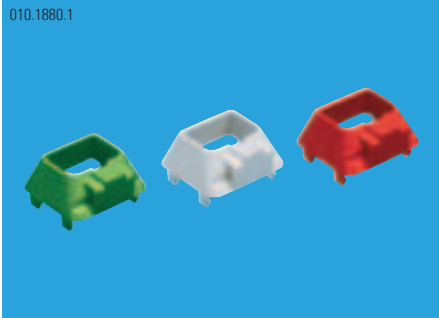

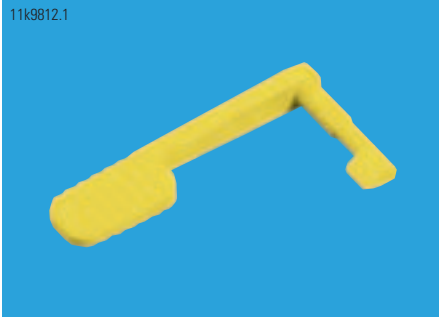



Patented Safe Clip – accidental unplugging of the connecting cable made impossible.

#### **Features (Safe Clip)**

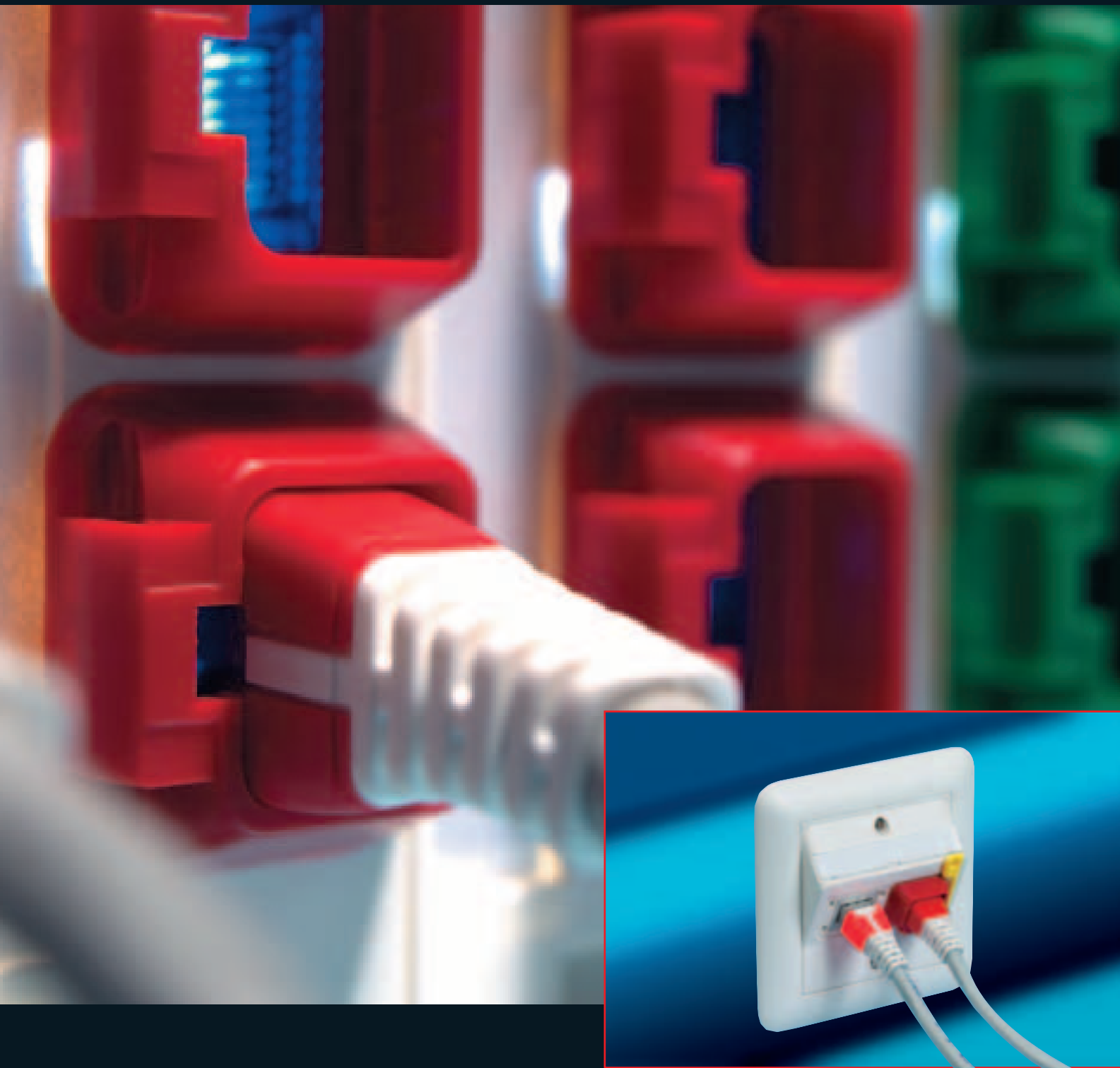
- Tool-free mounting onto the new patch cord.
- Subsequent direct mounting also possible.
- C-UL-US certified.
- Halogen-free material.
- Patented.



Ordering Information	Description	Packing Unit	Part Number
 <p>010.1880.1</p>	<p><b>Plug Guard</b> Connection protection for outlets and patch panels.</p> <p>Colour: green red white</p>	<p>20 20 20</p>	<p>R304825 R304826 R304827</p>
 <p>010.2289</p>	<p><b>Jack Guard</b> Plug-in protection for outlets and patch panels.</p>	<p>20</p>	<p>R307199</p>
 <p>11k9812.1</p>	<p><b>Plug Guard Key</b> Key to Plug Guard to release Plug Guard- or Jack Guard-protected connections.</p>	<p>1</p>	<p>R304828</p>
 <p>010.1910.1</p>	<p><b>Safe Clip</b> Patch cord locking. Protects connections from being inadvertently plugged out.</p>	<p>20</p>	<p>R304807</p>

# R&M Security System

Data loss is out of the question!



All the varying security requirements of customers can now be met – thanks to the new modular Security System by R&M.

**Security in case of dangerous environmental influences**

Today, computer and other intelligent control systems are also installed in locations where the given conditions are far from ideal. That means industrial production, large bakeries and kitchens or restaurants for example where dust, dirt, liquids and other damaging environmental influences endanger the quality of connections.

To protect your generic cabling system R&M developed Splash Line, based on a completely new concept, guaranteeing data security and full protection.



Products	Page
1 Splash Line	160
2 Splash Cap	161
3 Splash Sleeve	161
4 Splash Mounting Tool	161
5 IP Specifications	162

R&M Environment System  
Splash Line Products



The Splash Line product range new also features outlets for both wall- or flush-mounting, of the protection index IP 54 (QUINEL tested) in water and dust protection.

**Environmental conditions:**

- -25 °C to +80 °C (storage and transport -40 °C to +80 °C)
- Steam/hot water/oils
- Condensation
- Environment containing salt water
- Any kind of dust
- General air pollution (not acidity)

Ordering Information	Description	Packing Unit	Part Number
	<b>Flush-Mount Splash Outlet, for wet locations</b> 87 x 87, 2 x 1 port	1	R307036
	<b>Flush-Mount Splash Outlet, for wet locations</b> 87 x 87, 1 port	1	R307037
	<b>Wall-Mount Splash Outlet, for wet locations</b> 87 x 87, 1 port	1	R307038
	<b>Wall-Mount Splash Outlet, for wet locations</b> 87 x 87, 2 x 1 port	1	R307039



In combination with a suitable outlet the R&M Splash Line protects plugged connections from dust and water up to IP54 – also with a closed port. With the 3-prong sleeve expander, which is supplied as part of the programme, the cap can be mounted on-site – even with colour coding, thanks to the transparent sleeve. All components consist of halogen-free material according to DIN/VDE 0472/815 and can resist the majority of environmental influences.


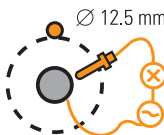
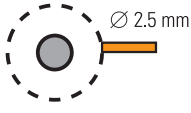
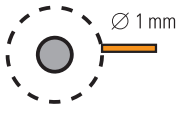
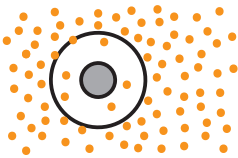
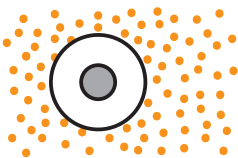
You can even retrofit the R&M Splash Line on-site for the products all fit the smartholes of R&M products.





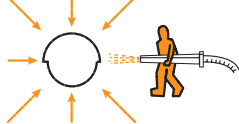
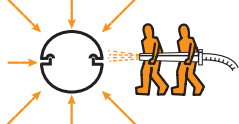


Ordering Information	Description	Packing Unit	Part Number
010.2134	<b>Splash Cap</b> Dust cover and colour coding for data outlets and patch panels. Cap and rubber seal secure protection level IP54. Colour: blue yellow green red white	      10 10 10 10 10	      R306058 R306060 R306061 R306062 R306063
010.2127	<b>Splash Sleeve</b> Transparent, elastic rubber sleeve to all RJ45 patch cords. In combination with the cap, the rubber sleeve reaches protection level IP54.	10	R306064
010.2140	<b>Splash Mounting Tool (3-prong sleeve expander)</b> Matching sleeve expander to mount the rubber sleeve onto the patch cord. It has an in-built mechanical limit stop to prevent the sleeve from being overstretched.	1	R306057

**IP Protection**

IP stands for the degree of protection from dust and water afforded by electrical equipment and enclosures. The IP Codes is determined in accordance with IEC 60529 and EN 60529. IP is short for International Protection and the two digits stand for the degree of protection.



First IP Digit	Test Definition	Foreign Object Protection
0		No special protection against penetration of solid object.
1	<p>010.2108</p>  <p>The access probe (sphere) shall be at safe distance to parts at risk, i.e. not fully penetrate.</p>	Protection against penetration of solid objects larger than 50 mm in diameter.
2	<p>010.2109</p>  <p>The jointed test finger (l = 80 mm) shall be at safe distance to parts at risk, i.e. not fully penetrate.</p>	Protection against penetration of solid objects larger than 12.5 mm in diameter.
3	<p>010.2110</p>  <p>The access probe shall not fully penetrate.</p>	Protection against penetration of solid objects larger than 2.5 mm in diameter.
4	<p>010.2111</p>  <p>The access probe shall not fully penetrate.</p>	Protection against penetration of solid objects larger than 1 mm in diameter.
5	<p>010.2112</p>  <p>Temporary ingress of dust (talcum).</p>	Protection against harmful dust deposits. Ingress of dust is not totally prevented, but does not enter in sufficient quantity to interfere with operation of the equipment (dust protected).
6	<p>010.2113</p>  <p>No ingress of dust (talcum).</p>	Full contact protection against ingress of dust (dust tight).

Second IP Digit	Test Definition		Foreign Object Protection
0			No special protection.
1	010.2114 	Dripping water	Protection against dripping water. It shall have no harmful effect.
2	010.2115 	Dripping water	Protection against dripping water. Dripping water shall have no harmful effect when the enclosure is tilted at any angle 15° from its normal position (indirect dripping water).
3	010.2116 	Spraying water	Spraying water falling at any angle up to 60° from any direction shall have no harmful effect (spraying water).
4	010.2117 	Spraying water 360°	Water splashed against the enclosure from any direction shall have no harmful effect (spraying water).
5	010.2118 	Water jets from any direction. Jet 6.3 mm in diameter Quantity 12.5 l/min.	Water projected by a nozzle against the enclosure from any direction shall have no harmful effect (water jets).
6	010.2119 	Flooding Jet 12.5 mm in diameter Quantity 100 l/min.	Water from heavy seas or water projected in powerful jets shall not enter the enclosure in harmful quantities (flooding).
7	010.2120 	Submersion In pool with 1 m water pressure height	Ingress of water in harmful quantities shall not be possible when the enclosure is immersed in water under defined conditions of pressure and time (submersion).
8	010.2121 	Continuous submersion As agreed between manufacturer and customer	The equipment suitable for continuous submersion in water under conditions which shall be specified by the manufacturer (submersion). The conditions shall be more difficult than under IP digit 7.

# R&M Splash Line

Protection against dust and liquid up to IP 54



Protect your outlets against detrimental environment – influences.  
Splash Line guarantees secure connection.



To supplement the R&Mfreenet product range, R&M supplies a variety of adapter and baluns. These are all tested for standard compliance, function and durability in accordance with R&M's stringent requirements.



Products	Page
1 Adapter Easy Flex shielded	166
2 Adapter and Balun RJ45 – F-Type CATV, 550 MHz	167
3 Adapter and Balun RJ45 – BNC Video/Audio	168

Adapter and Baluns  
Easy Flex

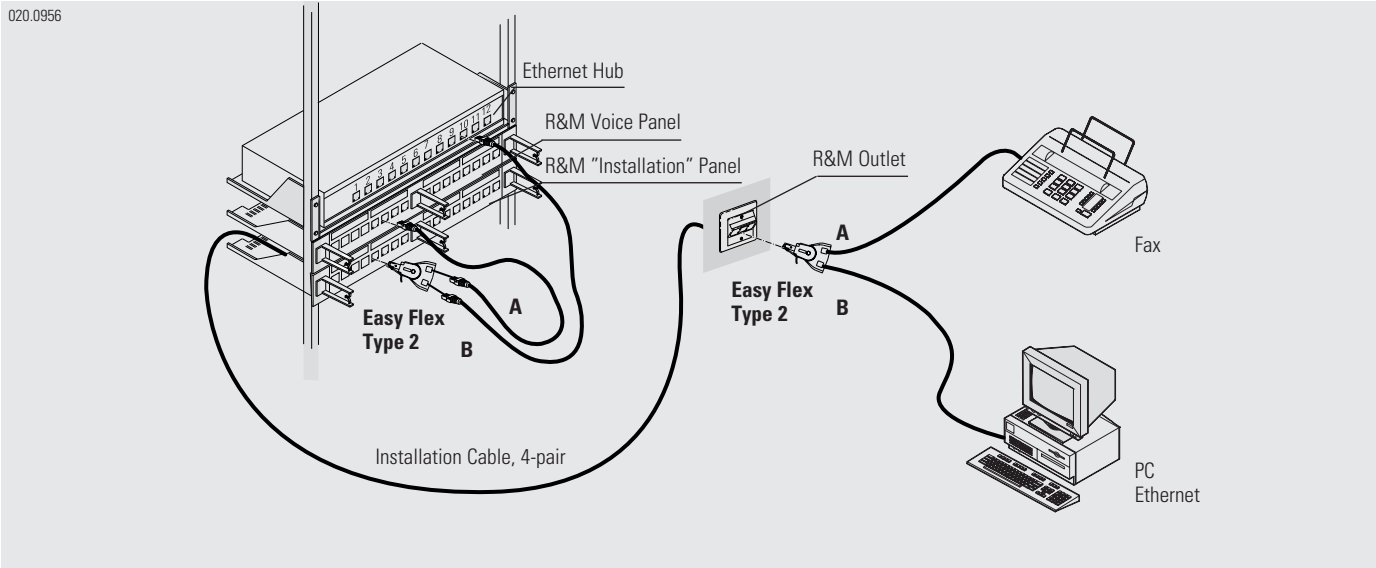


The Easy Flex Adapter is a fully shielded Cat.5 product for any two applications on one generic transmission link.

Features

- Making use of all four pairs of the generic transmission link.
- No installation down-time. Simply plug-and-play.
- All essential protocols are feasible with only four fully shielded Cat.5 Easy Flex types.
- Can be swivelled by 60° and be fitted onto patch panels or outlets.

Application



Applications	Easy Flex Types					
	1		2		4	
Jack	A	B	A	B	A	B
Pin Assignment	3+6/4+5	3+6/4+5	3+6/4+5	1+2/3+6	1+2/3+6	1+2/3+6
Token Ring	X	X	X			
Ethernet				X	X	X
Phone/Fax/Modem	X	X	X			
ISDN	X	X	X			

Ordering Information	Description	Packing Unit	Part Number
	Easy Flex shielded Type 1	1	R25938
	Easy Flex shielded Type 2	1	R25939
	Easy Flex shielded Type 4	1	R35120



The Composite Video Link Adaptor is a composite broadband video adapter which is designed to provide horizontal intra-building Connectivity of Broadband Community Antenna Television (CATV) distribution over shielded twisted pair cable (S-STP, S-FTP, FTP). Up to 56 VHF channels of 6 MHz bandwidth are supported. The supported number of channels will vary as a function of channel bandwidth. The adapter performs common-mode filtering, balancing and impedance matching (75Ω to 100Ω).

#### Features

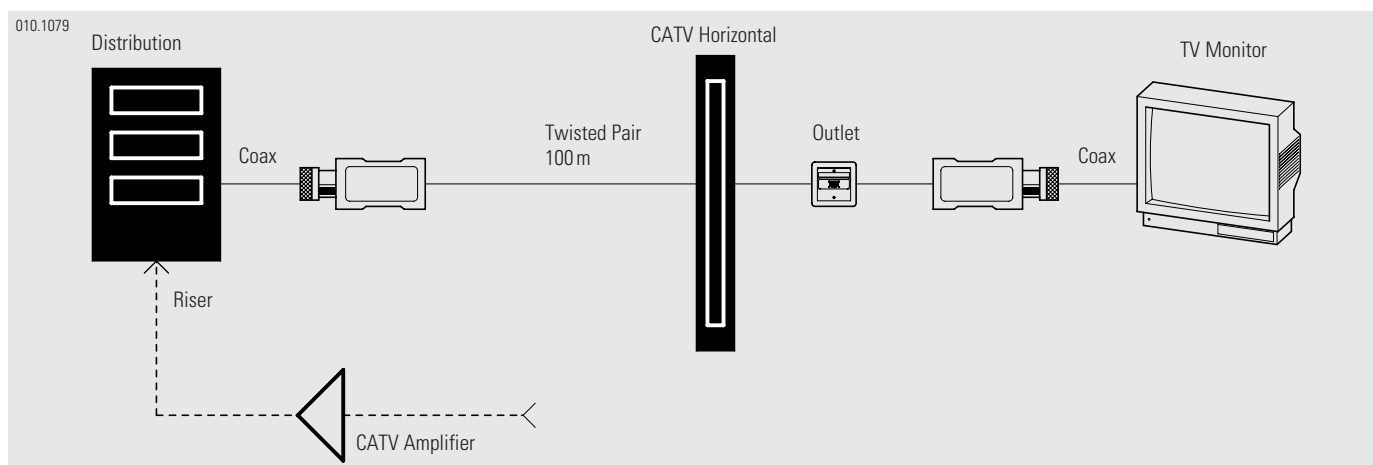
- Converts composite video transmission from coax 75Ω to twisted pair 100Ω.
- Passive device – no need for power.
- Minimal signal distortion and delay.
- Fully shielded to any EM interference.
- Common-mode filtering.
- Bandwidth: 5 MHz to 550 MHz.
- Total channels: 56 (at 6 MHz BW).
- Insertion loss: less than 3 dB.
- Transmission distance: 100 m (maximum).
- Return loss: > 20 dB.
- Common-mode rejection: > 40 dB.
- Input impedance: 75Ω.
- Output impedance: 100Ω.
- Signal to noise ratio: > 60 dB.
- Dimensions: 65 (L) x 23 (W) x 22 (H) mm.
- Maximum incoming signal: 130 dB μV.

#### FCC Class A Distance Limitation

Channel Range	Frequency Range (MHz)	Maximum Distance (m)
2–6	5– 84	100
14–22	125–175	100
7–13	175–212	90
23–29	217–254	90
30–56	255–550	70

#### CISPR Class B Distance Limitation

Channel Range	Frequency Range (MHz)	Maximum Distance (m)
2–6 + 14	55–127	100
15–19	127–157	70
7–138, 20–29	157–550	50



Ordering Information	Description	Packing Unit	Part Number
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**RJ45/s to F-Type CATV Balun, 550 MHz, 1–2**  
RJ45 pinout:  
1–2 video

10

R302091

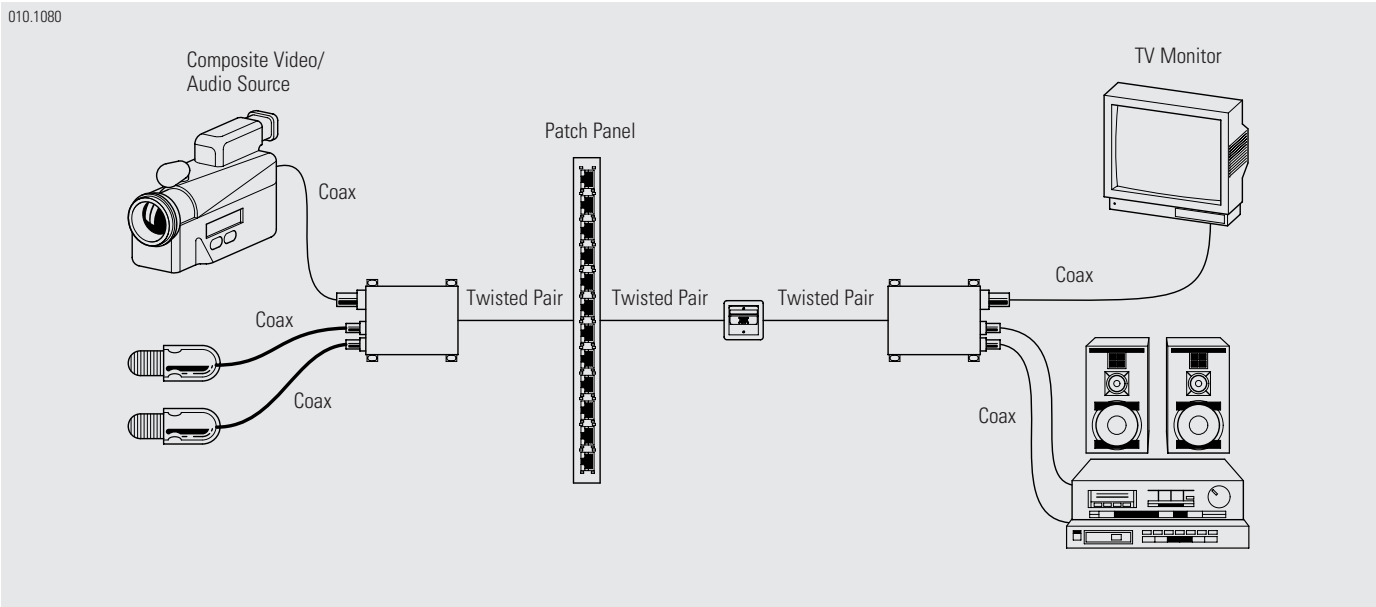
Baseband Video/Audio Adapter



The baseband video/audio adapter allows the transmission of video/audio signals over structured cabling systems. It has one channel for PAL/NTSC Composite Video Signals and two HiFi audio channels.

Features

- Transferring video and audio signals from coax cable to unshielded or shielded twisted pair (UTP, FTP, STP).
- Diagnostics per each channel.
- Extended distance for both audio and video.
- Passive device – no need for power.
- Dimensions: 20 (H) x 100 (D) mm.
- Weight: 100 g.
- Operation temperature: 0 °C–40 °C (32 °F–104 °F).
- Relative humidity: 90% non-condensing.



Ordering Information	Description	Packing Unit	Part Number
<p>010.1090</p>	<p><b>RJ45/s to BNC/f Video/Audio-Adaptor</b></p> <p>RJ45 pinout: 3–6 audio 1–2 audio 7–8 video</p>	1	R35103

Today's cabling standard is predominantly shaped by ISO 11801 and the European standard EN 50173. In a classical way they define a secondary and a tertiary cabling level, which are interconnected by main distributors or floor distributors.

The concept of "Open Office Communication", established in ISO 11801 2nd edition, is intended to provide the user with flexible and economic cabling systems which pay more attention to the continually changing IT structure. Figure 1 below provides an example of open office communication from its use in home offices to open office cabling in medium or large companies.

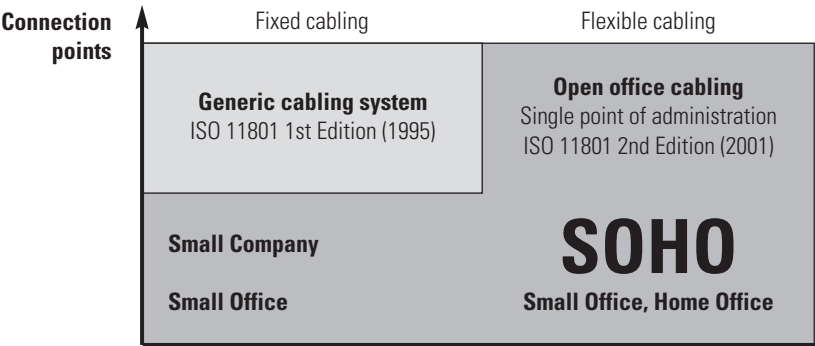


Figure 1: Change in cabling systems



Products	Page
1 maxiCase	172
2 miniCase	174
3 10" 3U Global Patch Panel	176
4 MUTO/CP	119/120
5 Desk Outlets	121
6 Accessories	177

### Change in building cabling

Since the passing of the international standard ISO 11801 1st edition in May 1995, there has been constant change in the way buildings are opened up for using voice, audio, video and data services. Today, growth is centred on the cabling structures of residential buildings and buildings of small and medium enterprises which demand multimedia connections for the new IP services such as e-mail, e-commerce, video on demand, etc.

Also since the passing of ISO 11801, the work groups of the relevant international standards committees worked on the content of the second edition (2002) of this document, which was published in September 2002. It deals with the description of the concept of network structures in residential buildings and buildings of small and medium enterprises. The novel concept of the network structure, which has become known as Open Office Communication or Open Office Cabling provides proposed solutions for cabling of residential buildings and buildings of small and medium enterprises.

### SOHO Cabling

Mobility and flexibility – two concepts, which are increasingly gaining in importance in today's offices infrastructure. The new standardisation is designed to meet these new demands.

The combination of flexible distributor and fixed installation cables, connection cables, and distributing elements is the basis of an office cabling that offers the best structure for small offices.

Ideal for the integration of multimedia components is the 10" 3U Global Patch Panel, designed on the basis of the 19" 3U Global Patch Panel. It offers the same variation options and is adapted to meet the demands of the 10" distributor. They are increasingly used in small offices and branch office environments. Most cabinet manufacturers' programmes include 10" distributor solutions. They can all be used as platform for the 10" patch panel.

Figure 2: Terminal devices and desk outlets are flexibly integrated into a network, by means of MUTO (Multi User Telecommunication Outlet) and CP (Consolidation Point) and via connection cables.

These elements allow a combination of fixed and flexible network infrastructure.

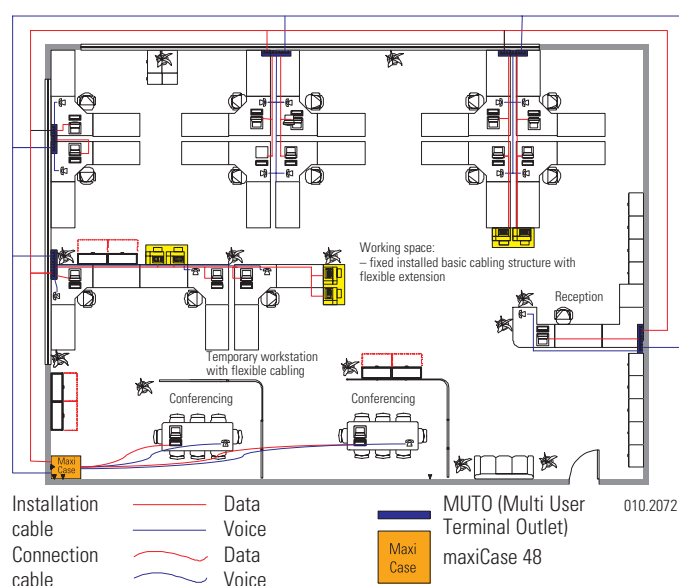
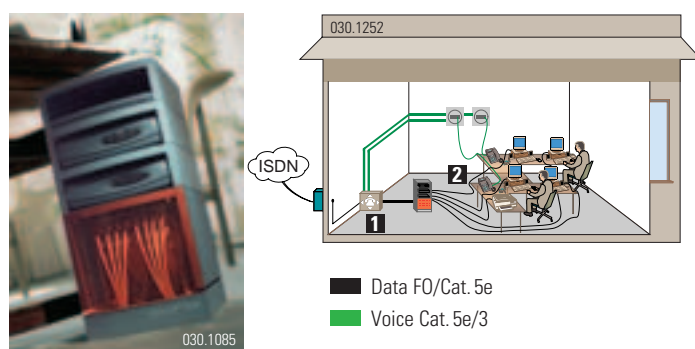


Figure 2: Office cabling with mobile distributor and MUTO.



The idea of a mobile distributor solution has also been well received in very small enterprises in the services sectors. The requirements of sales offices, law offices, doctors' surgeries etc. are equally met by mobile distributors. The most common starting position in the Small Office sector is subscriber network access via ISDN/PABX environment (1) in which in-house cabling is divided into voice and data services. The mobile distributor miniCase 24 (for desktop devices) or maxiCase 48 (for 19" components) makes it possible to serve up to 48 workplaces with flexible cabling (2). The distributor may be regarded as a mobile hub, which includes the ability to configure various bus structures and provides the applicant with an IT environment optimally matched to the actual situation of the enterprise.

**Single Point of Administration,  
Open Office Cabling**

The term Single Point of Administration refers to the integration of the secondary and tertiary cabling levels based on a single transmission medium, namely fiber optics. Active components are only required at the end of the FO link (2). Electro-optical conversion, routing and any switching in the floor distributor that may be necessary, are no longer required. The building distributor (1) and the mobile distributor maxiCase 48 incorporating the respective active components, provide the Fiber-to-the-Office solution. As shown in the example in Figure 3,

voice services may be routed to a workplace via a separate, possibly an existing, telephone network and subsequently provided in a cordless (3) way; alternatively they may be provided via a solution involving a DECT application (4).

Although originating in the SOHO environment, the solution using mobile distributors can also be applied in medium and large enterprises. The desire for redundant operative cells for managing the daily process-oriented tasks renders Open Office Communication a truly powerful tool of the future for a host of applications.

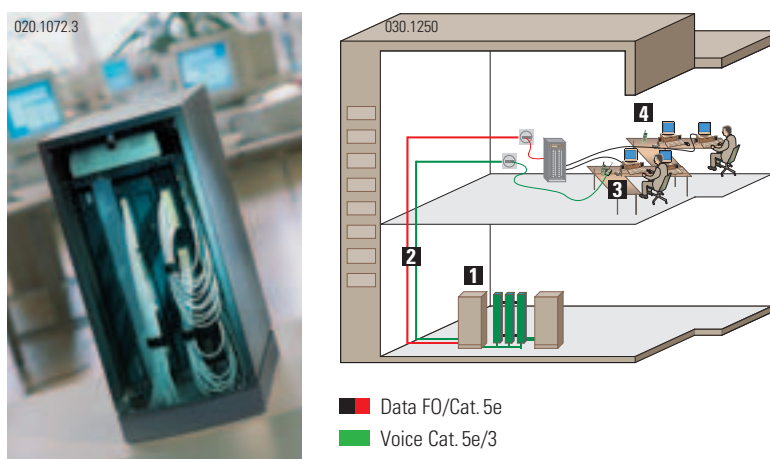


Figure 3: Single Point of Administration, open office cabling for medium and large enterprises

## SOHO Platform – maxiCase 48



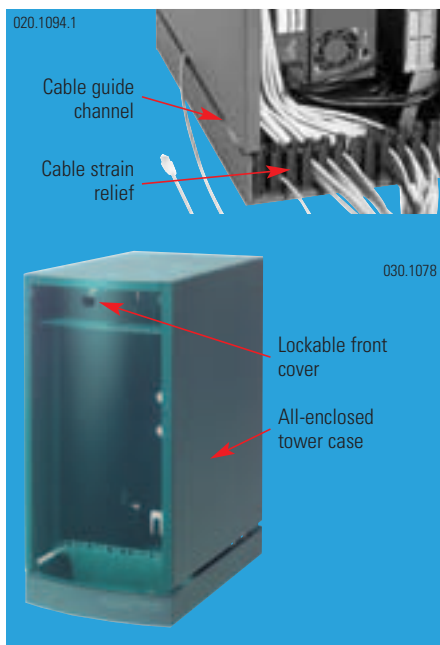
Platform R&M maxiCase 48

The maxiCase 48 is designed to house active and passive network components and to provide clearly laid out cabling of internal and external connections. It is configured for 48 connections and provides fixed or flexible workplace access according to ISO/IEC 11801. The tower case with removable back cover features a vertical 19" mounting frame, a fixed compartment floor and a cable strain relief mechanism. Both 19" RJ45 distributor fields and individually selectable 19" active devices can be installed in the 19" mounting frame. The compartment floor provides the base for a desktop active device. With optional clip-on U elements the tower case can be expanded to accommodate further desktop active devices.

### Features

- Lateral horizontal cable guide ducts.
- Cable strain relief mechanism.
- Combined installation of 19" and desktop network components.
- Capacity increase thanks to additional U elements.
- Protection against unauthorised tampering with equipment.
- Stylish design to smoothly blend into modern office environments.
- Front doors available in green, blue, or grey.

The features allow clear routing of all incoming and outgoing cables (interconnect, mains and patch cords) without any strain or kinks, protected against accidental pulling out from the platform. The lockable front cover in conjunction with the all-enclosed tower case provides protection against unauthorised tampering with the equipment. The design and the coloured front covers allow optimal integration and matching of the maxiCase 48 to its surroundings.



Features R&M maxiCase 48

### Characteristics of the maxiCase 48

#### Tower case

Material	1 mm sheet steel, powder-coated
Colour	grey (RAL 7011)
Dimensions	685 x 310 x 503 mm (H x W x D)
Number of clip-on U elements	maximum 5
Temperature range in the maxiCase 48	up to + 50 °C

#### 19" mounting frame

Material	1.5 mm sheet steel, galvanised
Dimensions/design	19" x 6U (482 x 267 mm (H x W)/ASA perforation


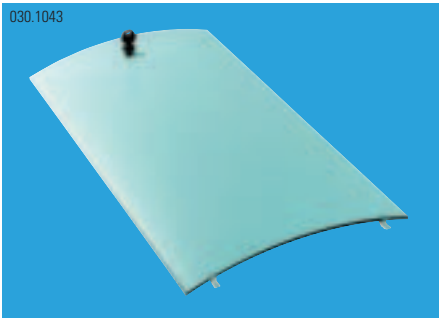
#### Compartment floor

Usable space	78.5 x 284 x 275 mm (H x W x D)
Loading capacity	maximum 2 kg




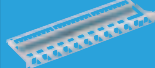






#### Operative range/environmental conditions

Designed for indoor applications
Avoid exposure to direct sunlight
Do not place near sources of heat
Do not place heavy objects on the base housing or the U element(s)



Ordering Information	Description	Packing Unit	Part Number
 <p>030.1079</p>	<b>maxiCase 48, 19", 24 Port Panel/u</b> Supplied: – 1 maxiCase 48 tower case complete (R302213) – 1 x 19"1U distributor field, equipped with 24 RJ45/u Cat.5e connection modules (R305118)	1	R302275
	<b>maxiCase 48, 19", 24 Port Panel/s</b> Supplied: – 1 maxiCase 48 tower case complete (R302213) – 1 x 19"1U distributor field, equipped with 24 RJ45/s Cat.5e connection modules (R305121)	1	R302276
	<b>maxiCase 48 Tower Case (without 24 Port Panel)</b> Supplied: – 1 tower case with rear panel and 19" 6U installation frame (ASA perforation) – 12 screws M6 x 16 mm incl. cage nuts and washers – 1 seal sheet with 6 seal stickers – 1 post pack including recess for front panel, ready for shipment – 1 user manual	1	R302213
 <p>030.1043</p>	<b>Front Screen Maxi</b> Front screen with lock, available in three colours for maxiCase 48. Material: SAN thermoplast Finish: transparent, finely structured		
	<b>Front Screen Maxi, green with Lock</b>	1	R302215
	<b>Front Screen Maxi, blue with Lock</b>	1	R302216
	<b>Front Screen Maxi, grey with Lock</b>	1	R302217

**i** Country-specific multi-plugs should be obtained locally.

Matching Modules				Matching Accessories			
1 x RJ45/s 1 x RJ45/u Cat. 5e	1 x RJ45/s 1 x RJ45/u Cat. 6	FO adaptors SC-RJ E2000™ Compact		19" 1U 24 Port Patch Panel, empty	Snap-In Colour Coding	Labelling Sheets	19" 1U Voice Panel, empty
010.2022.2 	010.2016.1 	030.1084 		010.2067 	010.1713 	020.0045 	020.0725.1 
010.2023.1 	010.2017.1 	010.2155 					
Page 32	Page 32	Page 40		Page 53	Page 49	Page 60	Page 82



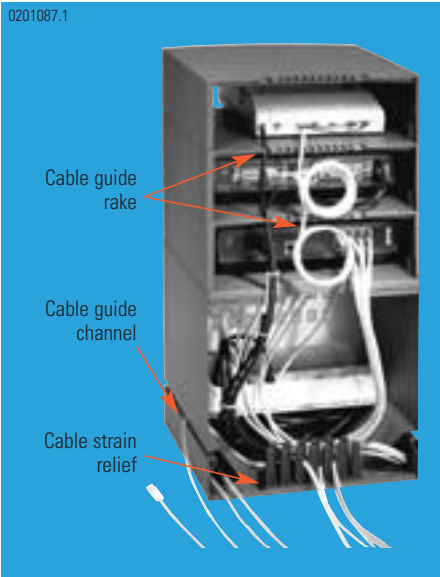
Platform R&M miniCase 24

The miniCase 24 is designed to house active and passive network components and to provide clearly laid out cabling of internal and external connections. It is configured for 24 connections and provides fixed or flexible work-place access according to IS 11801. The base housing with removable back cover has a labelled RJ45 distributor field, a fastening plate for a fourfold multi-plug, a cable strain relief mechanism, eight RJ45 combi cables and a U-element. The distributor field serves as an interconnection point between the internal cabling and the external workplace networking. The RJ45 combi cables connect the desktop active equipment to the distributor field. The U element is used to house an individually selectable desktop active device.

Features

- Lateral horizontal cable guide ducts.
- Labelled vertical cable guide rake for various cable diameters.
- Cable strain relief mechanism.
- Tool-free installation of the front cover or the U element or removal of the rear panel of the base housing.
- Capacity increase thanks to additional U elements.
- Stylish design to smoothly blend into modern office environments.
- Front covers available in green, blue, orange or grey.

The features allow clear routing of all incoming cables (interconnect, mains and patch cords) without any strain or kinks, protected against accidental pulling from the platform. The design and the coloured front covers allow optimal integration and matching of the miniCase 24 to its surroundings.



Features of R&M miniCase 24

Characteristics of the miniCase 24

Tower case


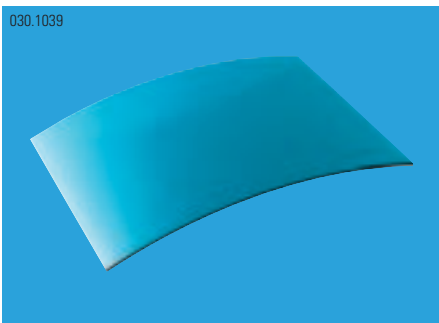
Material	1 mm sheet steel, powder-coated
Colour	grey (RAL 7011)
Dimensions (without U element)	320 x 310 x 330 mm (H x W x D)
Height including one U element	425 mm
Number of attachable U elements	maximum 5

Distributor field




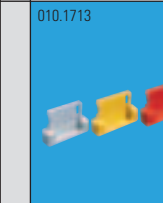

Material	1.5 mm sheet steel, galvanised
Number of ports	24 RJ45 sections

Operative range/environmental conditions

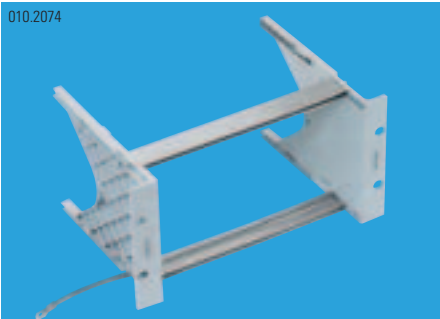
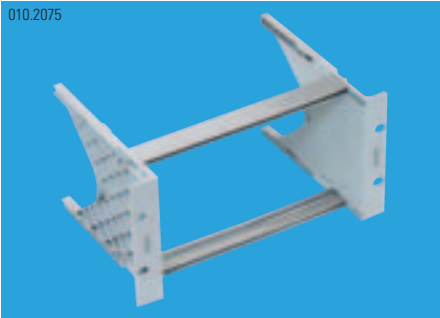
Designed for indoor applications
Avoid exposure to direct sunlight
Do not place near sources of heat
Do not place heavy objects on the base housing or the U element(s)

Ordering Information	Description	Packing Unit	Part Number
 <p>030.1077</p>	<p><b>miniCase 24 Tower Case complete</b></p> <p>Supplied:</p> <ul style="list-style-type: none"> <li>– 1 tower case with rear panel and 24 port distributor field, 1 card for labelling the distributor field</li> <li>– 1 U element</li> <li>– 8 combi cables DBT/RJ45 with 8 Snap-In frames and 8 grey coding wedges</li> <li>– 16 RJ45 blind covers</li> <li>– 1 set containing: 2 cable ties 290 x 3.6 mm and 12 quick closure ties 160 mm</li> <li>– 1 post pack including recess for front panel, ready for shipment</li> <li>– 1 user manual</li> </ul>	1	R302198
 <p>030.1039</p>	<p><b>Front Screen Mini</b></p> <p>Clip-on front screen available in four colours for miniCase 24.</p> <p>Material: SAN thermoplast</p> <p>Finish: transparent, finely structured.</p>		
	<b>Front Screen Mini, green</b>	1	R302200
	<b>Front Screen Mini, blue</b>	1	R302202
	<b>Front Screen Mini, grey</b>	1	R302203
	<b>Front Screen Mini, orange</b>	1	R302204




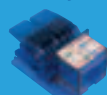

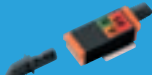






**i** Country-specific multi-plugs should be obtained locally.

Matching Modules				Matching Accessories			
1 x RJ45/s 1 x RJ45/u Cat. 5e	1 x RJ45/s 1 x RJ45/u Cat. 6	FO adaptors SC-RJ E2000™ Compact		Snap-In Colour Coding	Combi Cable Set		
 <p>010.2022.2 010.2023.1</p>	 <p>010.2016.1 010.2017.1</p>	 <p>030.1084 010.2155</p>		 <p>010.1713</p>	 <p>030.1038</p>		
Page 32	Page 32	Page 40		Page 49	Page 177		

SOHO  
10" 3U Global Patch Panel

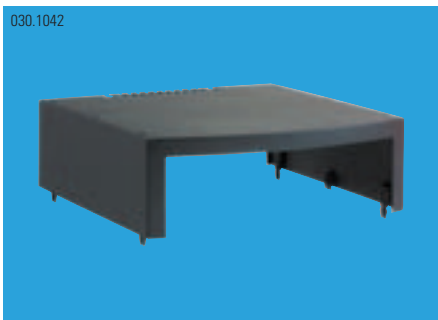
Ordering Information	Description	Packing Unit	Part Number
<div>010.2074</div> <div></div>	<b>10" 3U Global Patch Panel/s, empty</b> To accommodate up to seven Global/s connection module holders or Global blind covers. Includes mounting kit and earthing system.	1	R306023
<div>010.2075</div> <div></div>	<b>10" 3U Global Patch Panel/u, empty</b> To accommodate up to seven Global/u connection module holders or Global blind covers. Can also take up to two Global adapter frames. Includes mounting kit.	1	R306024

**i** 10" wall distributors to accommodate the 10" 3U Global Patch Panels are offered by all leading cabinet manufacturers.

Matching Modules			Matching Accessories				
1 x RJ45/s 1 x RJ45/u Cat. 5e	1 x RJ45/s 1 x RJ45/u Cat. 6	FO Adaptors SC-RJ E2000™ Compact	Security Products	Splash Protective Line	Global System Accessories	Labelling Sheets	Universal Blind Cover
<div>040.0060</div> <div></div> <div>010.1041</div> <div></div>	<div>010.1624</div> <div></div> <div>010.1623</div> <div></div>	<div>020.0700</div> <div></div> <div>010.2158</div> <div></div>	<div>010.0962.2</div> <div></div> <div>030.1509</div> <div></div>	<div>010.2128.1</div> <div></div>	<div>010.1783</div> <div></div>	<div>020.0045</div> <div></div>	<div>010.0934</div> <div></div>
Page 30	Page 30	Page 40	Page 152	Page 159	Page 54	Page 60	Page 59

Ordering Information	Description	Packing Unit	Part Number
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030.1042

**U Element**

Clip-on U element with rake for vertical routing of power cables, FO cables and patch cords.

1

R302214

**Characteristics of U element**

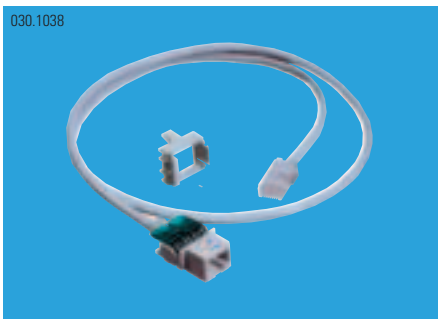
Material	ABS thermoplast
Colour	grey (RAL 7011)
Dimensions	105 x 310 x 330 mm (H x W x D)
Usable space	85 x 290 mm (H x W)
Loading capacity of each U element	max. 2 kg
Temperature range within the U element	up to + 50 °C

**Operative range/environmental conditions**

Designed for indoor applications
Avoid exposure to direct sunlight
Do not place near sources of heat
Do not place heavy objects on the base housing or the U element(s)

Ordering Information	Description	Packing Unit	Part Number
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030.1038

**Combi Cable Set DBT/RJ45**

For connecting the desktop active units to the distributor field in the miniCase 24.

Length: 80 cm

Supplied:

- 1 combi cable DBT/RJ45 UTP
- 1 Snap-In frame
- 1 coding wedge, colour grey

8

R302185

010.1353

**Crossover Cable RJ45-RJ45 S-FTP**

Signal crossover cable for connection hub-hub, hub-switch, and switch-switch.

Pin assignment 1-3, 2-6, 4-4, 5-5, 7-7, 8-8

Length: 1 m

10

R302707

Ordering Information	Description	Packing Unit	Part Number
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**FO Converter 100Base TX/100Base-FX**  
10 Mbps converter for electro-optical conversion from Ethernet 100Base-TX (RJ45) to Ethernet 100Base FX (ST) signals and vice versa.

1 R145218

#### Characteristics of the FO converter

Standard	IEEE 802.3, 100Base-FX, 100Base-TX
Connections	100Base-FX (ST), 100Base-TX (RJ45)
FO connection	ST multimode
Transmission mode	Half Duplex/Full Duplex
Permissible cable length 100Base-TX	1 - 100 m, depending on FO cable length
Permissible cable length 100Base-FX	120 m (Half Duplex), 2000 m (Full Duplex)
Status display	Power, TX Link, FX Link
Power supply	External mains adapter 5 VDC, 1 A supplied

Ordering Information	Description	Packing Unit	Part Number
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**Flex Duct**  
Flexible link chain for protecting the cables to the workplace from pedestrian traffic (Picture shows "mdm" product). Can be used as a rigid cable duct by snapping the chain links together.  
Length: 1 m (extended)  
Number of chain links per m:  
– 39 links (extended)  
– 50 links (snapped together)

1 R302724

The R&Mfreenet System provides various marketing tools. The Demo Rack and the Demo Case by R&M are two training tools with the additional advantage of being both flexible and mobile. In addition, all our catalogues are available in different languages (Ger./Eng.).



Products	Page
1 Demo Rack/Sample Case	180
2 R&M Documentation	181

Ordering Information	Description	Packing Unit	Part Number
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<b>Demo Rack, Standard</b> The demo rack has been developed to present the main features and benefits of the R&Mfreenet Cabling System.  It features the available connecting components for the different media types being used in generic cabling systems.  Global System covers all needs in the patching sector. The 3U Global patch panels permit numerous possible applications. Cat. 5e and Cat. 6 modules, D-Sub, coax and SCcompact modules find their applications here. A further possibility of voice integration is offered by the 1U, 50 port voice panel.  Also displayed is the 19" 1U rack, which is a practical alternative for smaller distributors.  A selection of telecommunications outlets is displayed as well as the unique Security System by R&M.  The patch/line cords clearly show the benefits of the coloured coding and the security products by R&M. They are neatly accommodated on 1U cable guide panels.  The demo rack is mounted on casters for full mobility.	1	R925920
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<b>Sample Case, Standard</b> The sample case contains a selection of R&Mfreenet Cabling System components such as: <ul style="list-style-type: none"><li>– 19" Voice Panel</li><li>– Patch/line cords, strain relief sleeves and plugs</li><li>– R&amp;M Security System</li><li>– Outlet connection modules and telecommunications outlets</li><li>– Fiber Optic components</li><li>– Adapters and baluns</li></ul> The components are packed in a compact, durable and representative carrying case.	1	R925661
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**i** For a detailed list of contents, contact R&M or your authorised R&Mfreenet dealer. Continuously updated.



Ordering Information	Description	Packing Unit	Part Number
010.2206 	<b>Overview Brochure R&amp;Mfreenet The LAN and SOHO Solution, English</b> This brochure provides a clear overview of the LAN and SOHO cabling system for data, voice and video transmission. Furthermore it provides detailed information of the positioning and structuring of the three systems CLASSICsystem, STARsystem and VISIONsystem.	1	R35034
	<b>Overview Brochure R&amp;Mfreenet The LAN and SOHO Solution, German</b>	1	R35033
010.2203 	<b>Product Catalogue R&amp;Mfreenet The LAN and SOHO Solution, English</b> This catalogue contains a description of products and provides information, application examples and technical data for the three systems CLASSICsystem, STARsystem and VISIONsystem.	1	R35027
	<b>Product Catalogue R&amp;Mfreenet The LAN and SOHO Solution, German</b>	1	R35026
030.1427 	<b>Product Catalogue Small Office, Small Company, English</b> Intelligent SOHO cabling system for voice, data and video applications.	1	R303217
	<b>Product Catalogue Small Office, Small Company, German</b>	1	R145330
010.2204 	<b>Product Catalogue Fiber Optic Solutions, English</b> This catalogue contains information of Fiber Optic products from R&M.	1	R305470
	<b>Product Catalogue Fiber Optic Solutions, German</b> This catalogue contains information of Fiber Optic products from R&M.	1	R305469



Part No	Description	Page	Part No	Description	Page
R145218	FO Converter 100Base TX/100Base-FX	178	R300317	Installation Cable, Cat. 5e, FTP 4P, PVC, 305 m box	12
R145330	Product Catalogue Small Office, Small Company, German	181	R300318	Labelling Sheet US Style, 6 Port	126
R22040	Plug Holder, large	91	R30039-06	Splice Holder Fujikura	77
R23002	BNC Crimp Socket	56	R300412	Snap-On DK Mounting Unit, 2 x 1 Port, white	111
R23021	Coax Blind Cover	56	R30042	Splice Holder 3M	78
R24031-01	Blind Plate 19" 1U GVS	58	R300472	FO 1U UniRack, equipped, 12 x type E-2000™ LSH, 62.5 µm (OM1)	66
R24031-02	Blind Plate 19" 2U GVS	58	R300541	8HP Adaptor Holder for 12 x E-2000™/SC/MT-RJ	75
R24031-03	Blind Plate 19" 3U GVS	58	R300542	8HP Adaptor Holder for 6 x SC-RJ/E-2000™ Compact	75
R24031-04	Blind Plate 19" 4U GVS	58	R300543	8HP Adaptor Holder for 12 x ST/FC-PC	75
R24069-03	Fixed Shelf 19" 3U GVS	58	R30055-3-8	Part Front Plate 19" 3U/8HP	75
R25055	Cable Through Guide Panel 1U	58	R300576	FO 1U UniRack, equipped, 12 x type E-2000™ LSH, 50 µm (OM2)	66
R25107	Colour Coding "A" for RJ45 Outlets, anthracite	155	R300579	FO 1U UniRack, equipped, 24 x type E-2000™ LSH, 50 µm (OM2)	66
R25111	ISDN-T Resistor set of 2	98	R30059-17	Cable Guide Set NW 17 mm	74
R25372	Connection Module, 1 x RJ45/s, ISDN-Bus	94	R300690	FO 1U UniRack, equipped, 12 x type ST, 50 µm (OM2)	66
R25373	Connection Module, 1 x RJ45/u, ISDN-Bus	94	R300695	Snap-On DK Mounting Unit, 2 x 1 Port, grey	111
R25431	Connection Module, 2 x RJ45/s, ISDN-Bus	94	R30086	Splice Protection ANT	77
R25432	Colour Coding "A" for RJ45 Connectors, anthracite	155	R30087	Splice Protection Fujikura FP-3M, Dimensions: diameter 3 x 65 mm	77
R25434	Connection Module 2 x RJ45/u, ISDN-Bus	94	R30087-35	Splice Protection Fujikura FP-3M, Dimensions: diameter 3 x 35 mm	77
R25520	ISDN Mini-S-Bus digital, shielded, anthracite	96	R30089	Splice Connector 3M Fibrlok	78
R25521	ISDN Mini-S-Bus digital, shielded, white	96	R300932	Connecting Cable for NT + 2ab, incl. U interface, unshielded, length 0.5 m	98
R25522	ISDN Mini-S-Bus digital, unshielded, anthracite	96	R300933	Connecting Cable for NT + 2ab, incl. U interface, unshielded, length 1.5 m	98
R25523	ISDN Mini-S-Bus digital, unshielded, white	96	R300934	Connecting Cable for NT + 2ab, incl. U interface, unshielded, length 3.0 m	98
R25524	Distributor 1 x RJ45 to 4 x RJ11/u	101	R300974	R&M FiberCon 48, empty	63
R25676	Colour Coding "B" for RJ45 Outlets, white	155	R30125	Baffle Guide, right	72
R25677	Colour Coding "B" for RJ45 Connectors, white	155	R30126	Baffle Guide, left	72
R25760	WM Test Outlet ISDN, 3 x RJ45/s, 78 x 78	97	R301388	Connection Module 10 x RJ45/u (4–5, 7–8)	82
R25762	FM Test Outlet ISDN, 3 x RJ45/s, 88 x 88	97	R301457	FO Adaptor E-2000™, MM, 62.5/125 µm, black/black	39
R25764	FM Test Outlet ISDN, 3 x RJ45/u, 88 x 88	97	R301569	Strain Relief Tape, 500 m	76
R25765	WM Test Outlet ISDN, 3 x RJ45/u, 78 x 78	97	R301992	FO 1U UniRack, equipped, 24 x type SC, 50 µm (OM2)	66
R25778	Adapter RJ45/s-RJ45/s ISDN-T	98	R302003	Cable Guide for 19" Rack, depth 110 mm, 600 mm Velcro strips	73
R25938	Easy Flex, shielded, type 1	166	R302004	Patching Ring, left and right, for 19" Rack, Velcro fastening 200 mm, depth 35 mm	73
R25939	Easy Flex, shielded, type 2	166	R302006	FO Rear Cable Entry with PG 16 Screwing	73
R25987	ISDN Mini-S-Bus analog/digital, white	96	R302007	Radius Guard 2 x 15 mm for Patch Cable Tray II	74
R25988	ISDN Mini-S-Bus analog/digital, anthracite	96	R30203	Strain Relief 0.9 mm	76
R30004-20	Dummy Plugs E-2000™/SC/MT-RJ	76	R302031	Shuttered Fascia, 25 x 50 mm, 1 Port, black	114
R300154	FO 19" 3U 8HP Fiberliner, equipped, splice version zirconia ceramic, 12 x type ST, 50 µm (OM2)	69	R302039	Installation Cable, Cat. 5e, FTP, LSFROH, 500 m drum	12
R30021	Warning Sign Set	78	R30204	Strain Relief 2.1 mm	76
R300258	FO 19" 3U 8HP Fiberliner, equipped, splice version zirconia ceramic, 6 x type SC Duplex, 62.5 µm (OM1)	69	R302058	Rear Cable Guide II to 19" 1U and 2U UniRack	73
R300259	FO 19" 3U 8HP Fiberliner, equipped, splice version zirconia ceramic, 6 x type SC Duplex, 50 µm (OM2)	69	R302088	Installation Cable, Cat. 5e, S-FTP 4 x 4P, LSOH, 500 m drum	13
R300264	FO 1U UniRack, equipped, 12 x type SC Duplex, 50 µm (OM2)	66	R302089	Installation Cable, Cat. 5e, S-FTP 4P, LSOH, 500 m drum	13
R300265	FO 1U UniRack, equipped, 12 x type SC Duplex, 62.5 µm (OM1)	66	R302091	RJ45/s to F-type CATV Balun, 550 MHz, 1–2	167
R300266	Fan Out Kit	78			
R300283	Coax Socket Holder, 2 x 5	55			
R300315	FO 1U UniRack, equipped, 24 x type ST, 50 µm (OM2)	66			
R300316	Installation Cable, Cat. 5e, FTP 4P, LSOH, 305 m box	12			

## Part Number Index

Part No	Description	Page	Part No	Description	Page
R302149	1/2 Blind Cover, Global	54	R302322	Patch Cable, shielded, S-STP 4P, PVC, Cat. 6, 1.5 m	145
R302150	Protective Conductor Terminal, 6 mm <sup>2</sup>	59	R302323	Patch Cable, shielded, S-STP 4P, PVC, Cat. 6, 2.0 m	145
R302151	Snap-In Coding Clip, anthracite	49	R302324	Patch Cable, shielded, S-STP 4P, PVC, Cat. 6, 3.0 m	145
R302152	Snap-In Coding Clip, blue	49	R302325	Patch Cable, shielded, S-STP 4P, PVC, Cat. 6, 5.0 m	145
R302153	Snap-In Coding Clip, brown	49	R302326	Patch Cable, shielded, S-STP 4P, PVC, Cat. 6, 7.5 m	145
R302154	Snap-In Coding Clip, green	49	R302327	Patch Cable, shielded, S-STP 4P, PVC, Cat. 6, 10.0 m	145
R302155	Snap-In Coding Clip, red	49	R302328	Patch Cable, shielded, S-STP 4P, PVC, Cat. 6, 12.5 m	145
R302156	Snap-In Coding Clip, violet	49	R302329	Patch Cable, shielded, S-STP 4P, PVC, Cat. 6, 15.0 m	145
R302157	Snap-In Coding Clip, white	49	R302330	Patch Cable, shielded, S-STP 4P, PVC, Cat. 6, 20.0 m	145
R302158	Snap-In Coding Clip, yellow	49	R302331	Patch Cable, shielded, S-STP 4P, LSFROH, Cat. 6, 0.5 m	145
R302182	Connection Module 10 x RJ45/u ISDN/Bus	82	R302332	Patch Cable, shielded, S-STP 4P, LSFROH, Cat. 6, 1.0 m	145
R302182	Connection Module 10 x RJ45/u ISDN/Bus	86	R302333	Patch Cable, shielded, S-STP 4P, LSFROH, Cat. 6, 1.5 m	145
R302185	Combi Cable Set DBT/RJ45	177	R302334	Patch Cable, shielded, S-STP 4P, LSFROH, Cat. 6, 2.0 m	145
R302198	miniCase 24 Tower Case complete	175	R302335	Patch Cable, shielded, S-STP 4P, LSFROH, Cat. 6, 3.0 m	145
R302200	Front Screen Mini, green	175	R302336	Patch Cable, shielded, S-STP 4P, LSFROH, Cat. 6, 5.0 m	145
R302202	Front Screen Mini, blue	175	R302337	Patch Cable, shielded, S-STP 4P, LSFROH, Cat. 6, 7.5 m	145
R302203	Front Screen Mini, grey	175	R302338	Patch Cable, shielded, S-STP 4P, LSFROH, Cat. 6, 10.0 m	145
R302204	Front Screen Mini, orange	175	R302339	Patch Cable, shielded, S-STP 4P, LSFROH, Cat. 6, 12.5 m	145
R302213	maxiCase 48 Tower Case (without 24 Port Panel)	173	R302340	Patch Cable, shielded, S-STP 4P, LSFROH, Cat. 6, 15.0 m	145
R302214	U Element	177	R302342	Colour Coding, anthracite	148
R302215	Front Screen Maxi, green, with Lock	173	R302343	Colour Coding, blue	148
R302216	Front Screen Maxi, blue, with Lock	173	R302344	Colour Coding, brown	148
R302217	Front Screen Maxi, grey, with Lock	173	R302345	Colour Coding, yellow	148
R302275	maxiCase 48, 19" 24 Port Panel/u	173	R302347	Colour Coding, grey	148
R302276	maxiCase 48, 19" 24 Port Panel/s	173	R302348	Colour Coding, green	148
R302298	Patch Cable, unshielded, UTP 4P, PVC, Cat. 6, 0.5 m	145	R302349	Colour Coding, red	148
R302299	Patch Cable, unshielded, UTP 4P, PVC, Cat. 6, 1.0 m	145	R302360	19" 3U Global Patch Panel, 48 x RJ45/s, Cat. 6	51
R302300	Patch Cable, unshielded, UTP 4P, PVC, Cat. 6, 1.5 m	145	R302361	19" 3U Global Patch Panel, 48 x RJ45/u, Cat. 6	51
R302301	Patch Cable, unshielded, UTP 4P, PVC, Cat. 6, 2.0 m	145	R302362	19" 3U Global Patch Panel, 60 x RJ45/s, Cat. 6	52
R302302	Patch Cable, unshielded, UTP 4P, PVC, Cat. 6, 3.0 m	145	R302363	19" 3U Global Patch Panel, 60 x RJ45/u, Cat. 6	52
R302303	Patch Cable, unshielded, UTP 4P, PVC, Cat. 6, 5.0 m	145	R302372	Connection Module, Cat. 6, 1 x RJ45/s	30
R302304	Patch Cable, unshielded, UTP 4P, PVC, Cat. 6, 7.5 m	145	R302373	Connection Module, Cat. 6, 1 x RJ45/u	31
R302305	Patch Cable, unshielded, UTP 4P, PVC, Cat. 6, 10.0 m	145	R302387	FM Outlet 12 x 1 Port, white	120
R302306	Patch Cable, unshielded, UTP 4P, PVC, Cat. 6, 12.5 m	145	R302388	WM Outlet 12 x 1 Port, white	120
R302307	Patch Cable, unshielded, UTP 4P, PVC, Cat. 6, 15.0 m	145	R30239	FO Outlet Module Holder 1 x SC Duplex	139
R302308	Patch Cable, unshielded, UTP 4P, PVC, Cat. 6, 20.0 m	145	R302418	Patch Cable, shielded, S-STP 4P, LSFROH, Cat. 6, 20.0 m	145
R302309	Patch Cable, unshielded, UTP 4P, LSOH, Cat. 6, 0.5 m	145	R30242	FO Outlet Module Holder 2 x SC Duplex	139
R302310	Patch Cable, unshielded, UTP 4P, LSOH, Cat. 6, 1.0 m	145	R302420	Colour Coding, violet	148
R302311	Patch Cable, unshielded, UTP 4P, LSOH, Cat. 6, 1.5 m	145	R30247	Module Fixing Strap	77
R302312	Patch Cable, unshielded, UTP 4P, LSOH, Cat. 6, 2.0 m	145	R302518	Snap-In Connection Module, Cat. 5e, 1 x RJ45/u	32
R302313	Patch Cable, unshielded, UTP 4P, LSOH, Cat. 6, 3.0 m	145	R302537	FO Snap-In Adaptor SC-RJ, SM/MM	53
R302314	Patch Cable, unshielded, UTP 4P, LSOH, Cat. 6, 5.0 m	145	R302537	FO Snap-In Adaptor SC-RJ, SM/MM	40
R302315	Patch Cable, unshielded, UTP 4P, LSOH, Cat. 6, 7.5 m	145	R30255	Splice Holder ANT	77
R302316	Patch Cable, unshielded, UTP 4P, LSOH, Cat. 6, 10.0 m	145	R302707	Crossover Cable RJ45-RJ45 S-FTP	177
R302317	Patch Cable, unshielded, UTP 4P, LSOH, Cat. 6, 12.5 m	145	R302724	Flex Duct	178
R302318	Patch Cable, unshielded, UTP 4P, LSOH, Cat. 6, 15.0 m	145	R30278	Cover to 19" Fiberliner pre.	71
R302319	Patch Cable, unshielded, UTP 4P, LSOH, Cat. 6, 20.0 m	145	R302780	Snap-In Connection Module, Cat. 5e, 1 x RJ45/s	32
R302320	Patch Cable, shielded, S-STP 4P, PVC, Cat. 6, 0.5 m	145	R30315	Cable Guide II for 19" Rack, depth 75 mm	73
R302321	Patch Cable, shielded, S-STP 4P, PVC, Cat. 6, 1.0 m	145	R303152	Flap Jack Wall Plate, 86 x 86, 1 Port, white	113

Part No	Description	Page	Part No	Description	Page
R303154	Flap Jack Wall Plate, 86 x 86, 2 x 1 Port, white	113	R303483	Top Hat Rail Mounting Support, 52 mm, horizontal	136
R303155	Flap Jack Module Holder (Type 6C), white	113	R303484	Top Hat Rail Mounting Support, 55 mm, horizontal	136
R30316-12-62.5	FO 1U UniRack, equipped, 12 x type SC, 62.5 µm (OM1)	66	R303485	Kleinhuis Mounting Support, 47 mm, horizontal	136
R30316-24-62.5	FO 1U UniRack, equipped, 24 x type SC, 62.5 µm (OM1)	66	R303486	Kleinhuis Mounting Support, 50 mm, horizontal	136
R30317-12-62.5	FO 1U UniRack, equipped, 12 x type ST, 62.5 µm (OM1)	66	R303487	Kleinhuis Mounting Support, 52 mm, horizontal	136
R30317-24-62.5	FO 1U UniRack, equipped, 24 x type ST, 62.5 µm (OM1)	66	R303488	FO KR50 Cable Reservoir	135
R303217	Product Catalogue Small Office, Small Company, English	181	R303489	FO Splice Deposit to KR Cable Reservoir	135
R30334	Labelling Strip to Splice Tray	77	R303490	Wall Plate 80 x 80 to FO Outlet, pearl white	135
R303435	FO Outlet 50 x 50 mm, ST, pearl white	130	R303491	Wall Plate 80 x 80 to FO Outlet, white	135
R303436	FO Outlet 50 x 50 mm, SC, MM, white	131	R303492	Wall Plate 80 x 86 to FO Outlet, white	135
R303437	FO Outlet 88 x 88 mm, SC, CH, MM, white	131	R303493	Wall Plate 88 x 88 to FO Outlet, white	135
R303438	FO Outlet 80 x 86 mm, SC, CH, MM, white	131	R303494	T-Slot Mounting Support, 50 mm, horizontal	136
R303439	FO Outlet 50 x 50 mm, MT-RJ, pearl white	130	R303495	T-Slot Mounting Support, 55 mm, horizontal	136
R303440	FO Outlet 50 x 50 mm, MT-RJ, white	131	R303496	FO Duct Outlet, SC-RJ, white	133
R303441	FO Outlet 88 x 88 mm, MT-RJ, CH, white	131	R303558	FO Adaptor MT-RJ, Duplex, black	40
R303442	FO Outlet 80 x 86 mm, MT-RJ, CH, white	131	R303561	FO Adaptor SC, MM Duplex, beige	39
R303443	FO Outlet 50 x 50 mm, ST, white	131	R303562	FO Adaptor ST, MM	38
R303444	FO Outlet 88 x 88 mm, ST, CH, white	131	R303563	19" Fiberliner, equipped, 12 x type E-2000™, 62.5 µm	71
R303445	FO Outlet 80 x 86 mm, ST, CH, white	131	R303568	19" Fiberliner, equipped, 6 x type MT-RJ	71
R303446	FO Outlet 50 x 50 mm, SC, SM, pearl white	130	R303570	FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version zirconia ceramic, 12 x type E-2000™, 50 µm (OM2)	69
R303447	FO Outlet 50 x 50 mm, SC, SM, white	131	R303571	FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version zirconia ceramic, 12 x type E-2000™, 62.5 µm (OM1)	69
R303448	FO Outlet 88 x 88 mm, SC, CH, SM, white	131	R303580	FO 19" 1U Fibereasy Rack 24, 12 x type MT-RJ	67
R303449	FO Outlet 80 x 86 mm, SC, CH, SM, white	131	R303581	FO 19" 1U Fibereasy Rack 24, 24 x type E-2000™, 62.5 µm (OM1)	67
R303450	FO Outlet 50 x 50 mm, SC, MM, pearl white	130	R303635	120 Perforated Labelling Strips	136
R303451	FO Duct Outlet, ST, SM, pearl white	132	R303786	Labelling Sheet 45 x 45 Mounting Plate	126
R303452	FO Duct Outlet, E-2000™, white	133	R303901	Mini Surface Box, 1 Port, creme white	116
R303453	FO Duct Outlet, MT-RJ, pearl white	132	R303902	Mini Surface Box, 1 Port, Magnet, creme white	116
R303454	FO Duct Outlet, MT-RJ, white	133	R303903	Mini Surface Box, RJ11, 4 Pole, 1 Port, creme white	116
R303455	FO Duct Outlet, SC-RJ, pearl white	132	R30393	Splice Tray, Basic Set	75
R303456	FO Duct Outlet, ST, SM, white	133	R30394	Splice Tray, Additional Set	75
R303457	FO Duct Outlet, ST, MM, pearl white	132	R303946	FO Testkit MLP 4 – 2	41
R303458	FO Duct Outlet, ST, MM, white	133	R303947	FO Testkit T410	41
R303459	FO Duct Outlet, SC Duplex, SM, pearl white	132	R30396-12-62.5	FO 1U UniRack, equipped, 12 x type E-2000™ Compact, 62.5 µm (OM1)	66
R303460	FO Duct Outlet, SC Duplex, SM, white	133	R30398-24-62.5	FO 1U UniRack, equipped, 24 x type E-2000™ LSH, 62.5 µm (OM1)	66
R303461	FO Duct Outlet, SC Duplex, MM, pearl white	132	R30399-12-50	FO 1U UniRack, equipped, 12 x type SC-RJ, 50 µm (OM2)	66
R303462	FO Duct Outlet, SC Duplex, MM, white	133	R30399-12-62.5	FO 1U UniRack, equipped, 12 x type SC-RJ, 62.5 µm (OM1)	66
R303463	FO Duct Outlet, E-2000™, pearl white	132	R304066	Simplex Cable, 1 fiber, 50/125 µm (OM2), 2000 m	20
R303464	FO Floorbox Outlet, ST, SM, pearl white	134	R304067	Simplex Cable, 1 fiber, 62.5/125 µm (OM1), 2000 m	20
R303466	FO Floorbox Outlet, MT-RJ, pearl white	134	R304068	Duplex Cable, 2 fibers, 50/125 µm (OM2), 2000 m	20
R303468	FO Floorbox Outlet, SC-RJ, pearl white	134	R304069	Duplex Cable, 2 fibers, 62.5/125 µm (OM1), 2000 m	20
R303471	FO Floorbox Outlet, ST, MM, pearl white	134	R304070	Drop Cable, 2 fibers, 50/125 µm (OM2), 2000 m	20
R303473	FO Floorbox Outlet, SC Duplex, SM, pearl white	134	R304071	Drop Cable, 2 fibers, 62.5/125 µm (OM1), 2000 m	20
R303475	FO Floorbox Outlet, SC Duplex, MM, pearl white	134	R304072	Mini Breakout Cable, 2 x 50/125 µm (OM2), Ø 4.7 mm, 2000 m	22
R303477	FO Floorbox Outlet, E-2000™, pearl white	134			
R303478	FO KR55 Cable Reservoir	135			
R303479	T-Slot Mounting Support, 50 mm, vertical	136			
R303480	T-Slot Mounting Support, 55 mm, vertical	136			
R303481	Top Hat Rail Mounting Support, 47 mm, horizontal	136			
R303482	Top Hat Rail Mounting Support, 50 mm, horizontal	136			

## Part Number Index

Part No	Description	Page	Part No	Description	Page
R304073	Mini Breakout Cable, 4 x 50/125 µm (OM2), Ø 4.7 mm, 2000 m	22	R304152	Loose Tube Cable, rodent-resistant, 48 x 50/125 µm (OM2), Ø 11.8 mm, 2000 m	24
R304074	Mini Breakout Cable, 6 x 50/125 µm (OM2), Ø 6.0 mm, 2000 m	22	R304153	Loose Tube Cable, rodent-resistant, 12 x 62.5/125 µm (OM1), Ø 8.4 mm, 2000 m	24
R304075	Mini Breakout Cable, 8 x 50/125 µm (OM2), Ø 6.0 mm, 2000 m	22	R304154	Loose Tube Cable, rodent-resistant, 24 x 62.5/125 µm (OM1), Ø 9.2 mm, 2000 m	24
R304076	Mini Breakout Cable, 12 x 50/125 µm (OM2), Ø 7.5 mm, 2000 m	22	R304155	Loose Tube Cable, rodent-resistant, 48 x 62.5/125 µm (OM1), Ø 11.8 mm, 2000 m	24
R304077	Mini Breakout Cable, 16 x 50/125 µm (OM2), Ø 9.0 mm, 2000 m	22	R304189	Mini Breakout Cable, 2 x 50/125 µm (OM2), Ø 3.4 mm, 2000 m	22
R304078	Mini Breakout Cable, 24 x 50/125 µm (OM2), Ø 14.0 mm, 2000 m	22	R304190	Mini Breakout Cable, 2 x 62.5/125 µm (OM1), Ø 3.4 mm, 2000 m	22
R304079	Mini Breakout Cable, 48 x 50/125 µm (OM2), Ø 17.0 mm, 2000 m	22	R304192	Mini Breakout Cable, 4 x 50/125 µm (OM2), Ø 3.4 mm, 2000 m.	22
R304080	Mini Breakout Cable, 2 x 62.5/125 µm (OM1), Ø 4.7 mm, 2000 m	22	R304193	Mini Breakout Cable, 4 x 62.5/125 µm (OM1), Ø 3.4 mm, 2000 m	22
R304081	Mini Breakout Cable, 4 x 62.5/125 µm (OM1), Ø 4.7 mm, 2000 m	22	R304195	Full Breakout Cable, 4 x 50/125 µm (OM2), Ø 9.0 mm, 2000 m	21
R304082	Mini Breakout Cable, 6 x 62.5/125 µm (OM1), Ø 6.0 mm, 2000 mm	22	R304196	Full Breakout Cable, 6 x 50/125 µm (OM2), Ø 10.6 mm, 2000 m	21
R304083	Mini Breakout Cable, 8 x 62.5/125 µm (OM1), Ø 6.0 mm, 2000 mm	22	R304197	Full Breakout Cable, 8 x 50/125 µm (OM2), Ø 12.0 mm, 2000 m	21
R304084	Mini Breakout Cable, 12 x 62.5/125 µm (OM1), Ø 7.5 mm, 2000 mm	22	R304198	Full Breakout Cable, 12 x 50/125 µm (OM2), Ø 13.6 mm, 2000 m	21
R304085	Mini Breakout Cable, 16 x 62.5/125 µm (OM1), Ø 9.0 mm, 2000 mm	22	R304199	Full Breakout Cable, 16 x 50/125 µm (OM2), Ø 15.8 mm, 2000 m	21
R304086	Mini Breakout Cable, 24 x 62.5/125 µm (OM1), Ø 14.0 mm, 2000 m	22	R304200	Full Breakout Cable, 4 x 62.5/125 µm (OM1), Ø 9.0 mm, 2000 m	21
R304087	Mini Breakout Cable, 48 x 62.5/125 µm (OM1), Ø 17.0 mm, 2000 m	22	R304201	Full Breakout Cable, 6 x 62.5/125 µm (OM1), Ø 10.6 mm, 2000 m	21
R304088	Loose Tube Cable, rodent-resistant, 4 x 50/125 µm (OM2), Ø 6 mm, 2000 m	23	R304202	Full Breakout Cable, 8 x 62.5/125 µm (OM1), Ø 12.0 mm, 2000 m	21
R304089	Loose Tube Cable, rodent-resistant, 6 x 50/125 µm (OM2), Ø 6 mm, 2000 m	23	R304203	Full Breakout Cable, 12 x 62.5/125 µm (OM1), Ø 13.6 mm, 2000 m	21
R304090	Loose Tube Cable, rodent-resistant, 8 x 50/125 µm (OM2), Ø 6 mm, 2000 m	23	R304204	Full Breakout Cable, 16 x 62.5/125 µm (OM1), Ø 15.8 mm, 2000 m	21
R304091	Loose Tube Cable, rodent-resistant, 12 x 50/125 µm (OM2), Ø 6 mm, 2000 m	23	R304210	Loose Tube Cable, corrugated steel tape, 12 x 50/125 µm (OM2), Ø 9.6 mm, 2000 m	24
R304092	Loose Tube Cable, rodent-resistant, 24 x 50/125 µm (OM2), Ø 10 mm, 2000 m	23	R304211	Loose Tube Cable, corrugated steel tape, 24 x 50/125 µm (OM2), Ø 9.6 mm, 2000 m	24
R304093	Loose Tube Cable, rodent-resistant, 4 x 62.5/125 µm (OM1), Ø 6 mm, 2000 m	23	R304212	Loose Tube Cable, corrugated steel tape, 48 x 50/125 µm (OM2), Ø 13.5 mm, 2000 m	24
R304094	Loose Tube Cable, rodent-resistant, 6 x 62.5/125 µm (OM1), Ø 6 mm, 2000 m	23	R304213	Loose Tube Cable, corrugated steel tape, 12 x 62.5/125 µm (OM1), Ø 9.6 mm, 2000 m	24
R304095	Loose Tube Cable, rodent-resistant, 8 x 62.5/125 µm (OM1), Ø 6 mm, 2000 m	23	R304214	Loose Tube Cable, corrugated steel tape, 24 x 62.5/125 µm (OM1), Ø 9.6 mm, 2000 m	24
R304096	Loose Tube Cable, rodent-resistant, 12 x 62.5/125 µm (OM1), Ø 6 mm, 2000 m	23	R304215	Loose Tube Cable, corrugated steel tape, 48 x 62.5/125 µm (OM1), Ø 13.5 mm, 2000 m	24
R304097	Loose Tube Cable, rodent-resistant, 24 x 62.5/125 µm (OM1), Ø 10 mm, 2000 m	23	R304275	503 Outlet, 4 x 1 Port, white	109
R304150	Loose Tube Cable, rodent-resistant, 12 x 50/125 µm (OM2), Ø 8.4 mm, 2000 m	24	R304313	Mounting Plate 45 x 45 mm, 1 Port, dust cover, white	115
R304151	Loose Tube Cable, rodent-resistant, 24 x 50/125 µm (OM2), Ø 9.2 mm, 2000 m	24	R304314	Mounting Plate 45 x 45 mm, 2 x 1 Port, dust cover, white	115
			R304315	Dust Cover Flap, blue	115
			R304316	Dust Cover Flap, green	115
			R304317	Dust Cover Flap, red	115



Part No	Description	Page	Part No	Description	Page
R304318	Dust Cover Flap, yellow	115	R305034	Patch Cable, shielded, S-FTP 4P, PVC, Cat. 5e, 7.5 m	143
R304325	Connection Module, Cat. 5e, 100 x RJ45/s	30	R305035	Patch Cable, shielded, S-FTP 4P, PVC, Cat. 5e, 10.0 m	143
R304326	Connection Module, Cat. 5e, 100 x RJ45/u	31	R305036	Patch Cable, shielded, S-FTP 4P, PVC, Cat. 5e, 12.5 m	143
R304327	Connection Module, Cat. 6, 100 x RJ45/s	30	R305037	Patch Cable, shielded, S-FTP 4P, PVC, Cat. 5e, 15.0 m	143
R304328	Connection Module, Cat. 6, 100 x RJ45/u	31	R305038	Patch Cable, shielded, S-FTP 4P, PVC, Cat. 5e, 20.0 m	143
R304360	FO 19" 1U Fibereasy Rack 24, 24 x type SC	67	R305039	Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 5e, 0.5 m	143
R304373	Snap-In Connection Module, Cat. 6, 1 x RJ45/s	32	R305040	Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 5e, 1.0 m	143
R304374	Snap-In Connection Module, Cat. 6, 1 x RJ45/u	32	R305041	Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 5e, 1.5 m	143
R304439	Cable Guide for 19" Rack, depth 110 mm	73	R305042	Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 5e, 2.0 m	143
R304440	Patching Ring, left and right, for 19" Rack, strain relief elastics, depth 75 mm	73	R305043	Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 5e, 3.0 m	143
R304475	19" 4U Patch Panel, empty	84	R305044	Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 5e, 5.0 m	143
R304667	Connection Module 8 x RJ45/u, SILC/ISDN BRA	85	R305045	Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 5e, 7.5 m	143
R304668	Connection Module 16 x RJ45/u, XFALC/XDLC/XFEM	85	R305046	Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 5e, 10.0 m	143
R304669	Connection Module 48 x RJ45/u, XDLC	85	R305047	Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 5e, 12.5 m	143
R304670	Connection Module 9 x RJ45/u, MDECT	85	R305048	Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 5e, 15.0 m	143
R304671	Connection Module 19 x RJ45/u, Remote Office 9150	85	R305049	Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 5e, 20.0 m	143
R304742	Connection Module 8 x RJ45/u, with Modu connection	84	R305050	Patch Cable, shielded/unshielded, S-FTP 4P, PVC, Cat. 5e, 0.5 m	144
R304742	Connection Module 8 x RJ45/u, with Modu connection	86	R305051	Patch Cable, shielded/unshielded, S-FTP 4P, PVC, Cat. 5e, 1.0 m	144
R304743	Connection Module 8 x RJ45/u, with two Modu connections	84	R305052	Patch Cable, shielded/unshielded, S-FTP 4P, PVC, Cat. 5e, 1.5 m	144
R304777	Mini Surface Box, 2 x 1 Port, Magnet, white	116	R305053	Patch Cable, shielded/unshielded, S-FTP 4P, PVC, Cat. 5e, 2.0 m	144
R304807	Safe Clip	157	R305054	Patch Cable, shielded/unshielded, S-FTP 4P, PVC, Cat. 5e, 3.0 m	144
R304825	Plug Guard, green	157	R305055	Patch Cable, shielded/unshielded, S-FTP 4P, PVC, Cat. 5e, 5.0 m	144
R304826	Plug Guard, red	157	R305056	Patch Cable, shielded/unshielded, S-FTP 4P, PVC, Cat. 5e, 7.5 m	144
R304827	Plug Guard, white	157	R305057	Patch Cable, shielded/unshielded, S-FTP 4P, PVC, Cat. 5e, 10.0 m	144
R304828	Plug Guard Key	157	R305058	Patch Cable, shielded/unshielded, S-FTP 4P, PVC, Cat. 5e, 12.5 m	144
R304873	Mounting Plate for 3M Fibrlok	78	R305059	Patch Cable, shielded/unshielded, S-FTP 4P, PVC, Cat. 5e, 15.0 m	144
R304907	Part Front Plate FiberCon 48 8HP	63	R305060	Patch Cable, shielded/unshielded, S-FTP 4P, PVC, Cat. 5e, 20.0 m	144
R304950	Special AMP Modu II Connecting Cable, length 2 m	84	R305061	Patch Cable, shielded/unshielded, S-FTP 4P, LSFROH, Cat. 5e, 0.5 m	144
R304971	FO WM Outlet, SC Duplex, MM	133	R305062	Patch Cable, shielded/unshielded, S-FTP 4P, LSFROH, Cat. 5e, 1.0 m	144
R305012	Duct Outlet, Ø 62.5 mm, 4 x 1 Port, white	108	R305063	Patch Cable, shielded/unshielded, S-FTP 4P, LSFROH, Cat. 5e, 1.5 m	144
R305014	Patch Cable, unshielded, UTP 4P, PVC, Cat. 5e, 0.5 m	143	R305064	Patch Cable, shielded/unshielded, S-FTP 4P, LSFROH, Cat. 5e, 2.0 m	144
R305015	Patch Cable, unshielded, UTP 4P, PVC, Cat. 5e, 1.0 m	143	R305065	Patch Cable, shielded/unshielded, S-FTP 4P, LSFROH, Cat. 5e, 3.0 m	144
R305019	Patch Cable, unshielded, UTP 4P, PVC, Cat. 5e, 1.5 m	143	R305066	Patch Cable, shielded/unshielded, S-FTP 4P, LSFROH, Cat. 5e, 5.0 m	144
R305020	Patch Cable, unshielded, UTP 4P, PVC, Cat. 5e, 2.0 m	143	R305067	Patch Cable, shielded/unshielded, S-FTP 4P, LSFROH, Cat. 5e, 7.5 m	144
R305021	Patch Cable, unshielded, UTP 4P, PVC, Cat. 5e, 3.0 m	143			
R305022	Patch Cable, unshielded, UTP 4P, PVC, Cat. 5e, 5.0 m	143			
R305023	Patch Cable, unshielded, UTP 4P, PVC, Cat. 5e, 7.5 m	143			
R305024	Patch Cable, unshielded, UTP 4P, PVC, Cat. 5e, 10.0 m	143			
R305025	Patch Cable, unshielded, UTP 4P, PVC, Cat. 5e, 12.5 m	143			
R305026	Patch Cable, unshielded, UTP 4P, PVC, Cat. 5e, 15.0 m	143			
R305027	Patch Cable, unshielded, UTP 4P, PVC, Cat. 5e, 20.0 m	143			
R305028	Patch Cable, shielded, S-FTP 4P, PVC, Cat. 5e, 0.5 m	143			
R305029	Patch Cable, shielded, S-FTP 4P, PVC, Cat. 5e, 1.0 m	143			
R305030	Patch Cable, shielded, S-FTP 4P, PVC, Cat. 5e, 1.5 m	143			
R305031	Patch Cable, shielded, S-FTP 4P, PVC, Cat. 5e, 2.0 m	143			
R305032	Patch Cable, shielded, S-FTP 4P, PVC, Cat. 5e, 3.0 m	143			
R305033	Patch Cable, shielded, S-FTP 4P, PVC, Cat. 5e, 5.0 m	143			

## Part Number Index

Part No	Description	Page
R305068	Patch Cable, shielded/unshielded, S-FTP 4P, LSFROH, Cat. 5e, 10.0 m	144
R305069	Patch Cable, shielded/unshielded, S-FTP 4P, LSFROH, Cat. 5e, 12.5 m	144
R305070	Patch Cable, shielded/unshielded, S-FTP 4P, LSFROH, Cat. 5e, 15.0 m	144
R305071	Patch Cable, shielded/unshielded, S-FTP 4P, LSFROH, Cat. 5e, 20.0 m	144
R305090	24 Port Patch Panel Labelling Sheet	60
R305111	Connection Module, Cat. 5e, 1 x RJ45/s, Special	33
R305112	Connection Module, Cat. 5e, 1 x RJ45/u, Special	33
R305113	Connection Module, Cat. 6, 1 x RJ45/s, Special	33
R305114	Connection Module, Cat. 6, 1 x RJ45/u, Special	33
R305117	19" 1U Patch Panel, 24 x RJ45/u, Cat. 6	49
R305118	19" 1U Patch Panel, 24 x RJ45/u, Cat. 5e	49
R305119	19" 1U 24 Port Patch Panel, empty	53
R305120	19" 1U Patch Panel, 24 x RJ45/s, Cat. 6	49
R305121	19" 1U Patch Panel 24 x RJ45/s, Cat. 5e	49
R305123	19" 1U Patch Panel, empty, for PBX, without wiring channel	84/85/86
R305148	FO 21" Adapter Set for 19" 1U Versions	74
R305149	FM Outlet, 88 x 88, 4 x 1 Port, white	104
R305150	FM Global Outlet, 88 x 88, 4 x 1 Port, white	105
R305151	DM Outlet, 80 x 86, 4 x 1 Port, white	107
R305178	SC Field Terminated, 9/125 µm	36
R305179	SC Field Terminated, 50/125 µm	36
R305180	SC Field Terminated, 62.5/125 µm	36
R305181	ST Field Terminated, 9/125 µm	36
R305182	ST Field Terminated, 50/125 µm	36
R305183	ST Field Terminated, 62.5/125 µm	36
R305184	MT-RJ Field Terminated, 50/125 µm	36
R305185	MT-RJ Field Terminated, 62.5/125 µm	36
R305186	Tool Kit I Standard, Tool Kit ST, SC, Field Terminated	37
R305332	Connection Module 8 x RJ45/u for S or T interfaces	86
R305374	19" 1U Contact Drawer II	72
R305400	FO Adaptor MT-RJ, MM, beige	39
R305401	FO Adaptor MT-RJ, SM/MM, blue	39
R305469	Product Catalogue Fiber Optic Solutions, German	181
R305470	Product Catalogue Fiber Optic Solutions, English	181
R305543	FO Adaptor E-2000™ Compact, MM, One-Channel Module, 62.5/125 µm black/black	40
R305544	FO Adaptor E-2000™ Compact, MM, 62.5/125 µm black/black	39
R305545	FO Adaptor, E-2000™ Compact, MM, Snap-In, 62.5/125 µm black/ black	40
R305649	Installation Cable, Cat. 6e, S-STP 4P, LSOH, 500 m drum	15
R305685	Hinged Dust Covers, anthracite	153
R305686	Hinged Dust Covers, blue	153
R305687	Hinged Dust Covers, brown	153
R305688	Hinged Dust Covers, yellow	153
R305689	Hinged Dust Covers, grey	153

Part No	Description	Page
R305690	Hinged Dust Covers, green	153
R305691	Hinged Dust Covers, red	153
R305692	Hinged Dust Covers, violet	153
R305693	Hinged Dust Covers, white	153
R305702	Flap Jack Module Holder (Type 6C), black	113
R305725	FO Adaptor E-2000™ Compact, MM, Snap-In, 50/125 µm black/orange	40
R30574	FO Adaptor SC-RJ, SM/MM, One-Channel Module	40
R305758	19" 1U Patch Cable Tray III	72
R305763	Connection Module, Cat. 5e, 1 x RJ45/s, Flap Jack	33
R305764	Connection Module, Cat. 6, 1 x RJ45/s, Flap Jack	33
R305766	Universal Blind Cover, light grey	59
R30578	SC-RJ Connector Housing	38
R305814	FO Adaptor E-2000™ Compact, MM, 50/125 µm black/orange	39
R305815	FO Adaptor, E-2000™ Compact, MM, One-Channel Module, 50/125 µm black/orange	40
R305816	FO Adaptor E-2000™, MM, 50/125 µm black/orange	39
R305885	19" 1U Patch Panel, 16 x RJ45/s, Cat. 5e	47
R305886	19" 1U Patch Panel, 16 x RJ45/u, Cat. 5e	47
R305887	19" 1U Patch Panel, 16 x RJ45/s, Cat. 6	47
R305888	19" 1U Patch Panel, 16 x RJ45/u, Cat. 6	47
R305889	19" 1U 16 Port Patch Panel, empty/s	53
R305890	19" 1U 16 Port Patch Panel, empty/u	53
R305989	19" Mounting Kit	59
R306000	Tool Kit II CTS, Tool Kit ST, SC and MT-RJ Field Terminated	37
R306004	80 x 80 Outlet, 2 x 1 Port, beige	110
R306006	80 x 80 Outlet, 2 x 1 Port, white	110
R306008	50 x 50 Outlet, 2 x 1 Port, beige	110
R306010	50 x 50 Outlet, 2 x 1 Port, white	110
R306023	10" 3U Global Patch Panel/s, empty	176
R306024	10" 3U Global Patch Panel/u, empty	176
R306039	16 Port Patch Panel Labelling Sheet	60
R306057	Splash Mounting Tool (3-prong sleeve expander)	161
R306058	Splash Cap, blue	161
R306060	Splash Cap, yellow	161
R306061	Splash Cap, green	161
R306062	Splash Cap, red	161
R306063	Splash Cap, white	161
R306064	Splash Sleeve	161
R306103	Connection Module, 8 x RJ45/u, switch-selectable	84
R306104	Special AMP Modu II Connecting Cable, length 6 m	84
R306105	Special AMP Modu II Connecting Cable, length 4 m	84
R306179	19" 1U Jumper Plastic Ring Panel	57/72
R306180	19" 2U Jumper Plastic Ring Panel	57/72
R306181	Patching Ring, left and right, for 19" Rack, Velcro fastening 400 mm, depth 75 mm	57/73
R306194	FO 19" 1U Fibereasy Rack 24, 24 x type E-2000™, 50 µm (OM2)	67



Part No	Description	Page	Part No	Description	Page
R306196	FO 19" 1U Fibereasy Rack 24, 12 x type E-2000™ Compact, 50 µm (OM2)	67	R30693-12	FO 19" 1U Fibereasy Rack 24, 12 x type SC-RJ	67
R306197	FO 19" 1U Fibereasy Rack 24, 12 x type E-2000™ Compact, 62.5 µm (OM1)	67	R306949	FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version PhBr, 6 x type SC Duplex, 50 µm (OM2)	69
R306198	FO 1U UniRack, equipped, 12 x type E-2000™ Compact, 50 µm (OM2)	66	R306950	FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version PhBr, 6 x type SC Duplex, 62.5 µm (OM1)	69
R306202	19" Fiberliner, equipped, 12 x type E-2000™, 50 µm	71	R306951	FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version PhBr, 12 x type ST, 50 µm (OM2)	69
R306212	FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version zirconia ceramic, 6 x type E-2000™ Compact, 50 µm (OM2)	69	R306952	FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version PhBr, 12 x type ST, 62.5 µm (OM1)	69
R306213	FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version zirconia ceramic, 6 x type E-2000™ Compact, 62.5 µm (OM1)	69	R306953	FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version PhBr, 6 x type E-2000™ Compact, 50 µm (OM2)	69
R306214	19" Fiberliner, equipped, 6 x type E-2000™ Compact, 50 µm	71	R306954	FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version PhBr, 6 x type E-2000™ Compact, 62.5 µm (OM1)	69
R306215	19" Fiberliner, equipped, 6 x type E-2000™ Compact, 62.5 µm	71	R306955	FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version PhBr, 6 x type SC-RJ, 50 µm (OM2)	69
R306775	FO 19" 1U Breakout Box, equipped, FO Cover for 19" 1U Splice Box / Breakout Box (50/62.5 µm)	65	R306956	FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version PhBr, 6 x type SC-RJ, 62.5 µm (OM1)	69
R306872	FO 19" 1U Breakout Box, equipped, 12 x type E-2000™ Compact, black/orange (50 µm)	65	R306957	19" Fiberliner, equipped, 6 x type SC Duplex MM	71
R306873	FO 19" 1U Breakout Box, equipped, 12 x type E-2000™ Compact, black/black (62.5 µm)	65	R306958	19" Fiberliner, equipped, 6 x type SC-RJ MM	71
R306874	FO 19" 1U Breakout Box, equipped, 24 x type ST (50/62.5 µm)	65	R306959	19" Fiberliner, equipped, 6 x type E-2000™ Compact, 50 µm	71
R306875	FO 19" 1U Breakout Box, equipped, 24 x type SC, beige (50/62.5 µm)	65	R306960	19" Fiberliner, equipped, 6 x type E-2000™ Compact, 62.5 µm	71
R306876	FO 19" 1U Breakout Box, equipped, 12 x type SC Duplex, beige (50/62.5 µm)	65	R306961	19" Fiberliner, equipped, 12 x type ST MM	71
R306877	FO Adaptor SC, MM, beige	38	R307013	FO Adaptor, SC-RJ, MM, Snap-In	40
R306878	FO Adaptor E-2000™ Compact, MM, 50/125 µm black/orange	39	R307036	Flush-Mount Splash Outlet, for wet locations, 87 x 87, 2 x 1 Port	160
R306882	FO Adaptor E-2000™ Compact, MM, 62.5/125 µm black/black	39	R307037	Flush-Mount Splash Outlet, for wet locations, 87 x 87, 1 Port	160
R306891	FO 19" 1U Splice Box, equipped (Multimode Version), 24 x type SC, 50 µm (OM2)	64	R307038	Flush-Mount Splash Outlet, for wet locations, 87 x 87, 1 Port	160
R306893	FO 19" 1U Splice Box, equipped (Multimode Version), 12 x type SC Duplex, 62.5 µm (OM1)	64	R307039	Flush-Mount Splash Outlet, for wet locations, 87 x 87, 2 x 1 Port	160
R306894	FO 19" 1U Splice Box, equipped (Multimode Version), 12 x type SC Duplex, 50 µm (OM2)	64	R307048	FO Adaptor, SC-RJ, MM, One-Channel Module	40
R306895	FO 19" 1U Splice Box, equipped (Multimode Version), 24 x type SC, 62.5 µm (OM1)	64	R307199	Jack Guard	157
R306895	FO 19" 1U Splice Box, equipped (Multimode Version), 24 x type ST, 62.5 µm (OM1)	64	R30802	FO Adaptor ST, SM/MM	38
R306896	FO 19" 1U Splice Box, equipped (Multimode Version), 12 x type E-2000™ Compact, 62.5 µm (OM1)	64	R30803	FO Adaptor SC, SM/MM, blue	38
R306897	FO 19" 1U Splice Box, equipped (Multimode Version), 12 x type E-2000™ Compact, 50 µm (OM2)	64	R30804	FO Hybrid Adaptor, SC Duplex/ST, SM/MM, blue	39
R306899	FO 19" 1U Splice Box, equipped (Multimode Version), 24 x type ST, 50 µm (OM2)	64	R30805	FO Adaptor SC, SM/MM, Duplex, blue	39
R30691-12	FO 19" 1U Fibereasy Rack 24, 12 x type ST	67	R30811	FO Outlet Module Holder 2 x ST	139
R30691-24	FO 19" 1U Fibereasy Rack 24, 24 x type ST	67	R30812	FO Outlet Module Holder 4 x ST	139
R306918	19" Fiberliner, equipped, 12 x type SC	71	R30813	FO Outlet Module Holder 1 x SC Duplex/ST	139
R30692-12	FO 19" 1U Fibereasy Rack 24, 12 x type SC Duplex	67	R30814	FO Outlet Module Holder 2 x SC Duplex/ST	139
			R30841	Dummy Plugs ST/FC-PC	76
			R30842	Dummy Plugs SC-RJ, E-2000™ Compact	76
			R30843	Dummy Plugs SC Duplex	76
			R30858	FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version zirconia ceramic, 12 x type ST, 62.5 µm (OM1)	69
			R30860	FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version zirconia ceramic, 12 x type SC, 62.5 µm (OM1)	69
			R30862	FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version zirconia ceramic, 6 x type SC-RJ, 62.5 µm (OM1)	69

## Part Number Index

Part No	Description	Page	Part No	Description	Page
R30863	19" Fiberliner, equipped, 6 x type ST	71	R35117	Blind Cover	87
R30864	19" Fiberliner, equipped, 12 x type SC	71	R35118	Mounting Support	87
R30867	19" Fiberliner, equipped, 6 x type SC-RJ	71	R35119	Labelling Sheet	87
R30870	19" 3U Adapter Housing	70	R35120	Easy Flex shielded, type 4	166
R30871	Fiberliner Labelling Sheet	69	R35121	Distributor 1 x RJ45/u to 4 x RJ45/u	101
R30871	Global Patch Panel Labelling Sheet	60	R35122	Concentrator Module 8 x RJ45/u to 2 x RJ45/u	82
R30872	1U Sub-Rack	68	R35126	Position Protection	91
R30873	Cover to 1U Sub-Rack	68	R35127	WM Outlet, 78 x 78, 1 Port, white	106
R30892	Cable Guide Set NW 10 mm	74	R35128	WM Outlet, 78 x 78, 2 x 1 Port, white	106
R31023	19" 3U FO Global Patch Panel	70	R35291	Installation Cable, Cat. 5e, UTP 4P, PVC, 305 m box	11
R31024	FO Holder for Global Patch Panel	70	R35292	Installation Cable, Cat. 5e, UTP 4P, LSOH, 305 m box	11
R35013-150	Special Line Cord for NT + 2ab, unshielded	98	R35293	Screw Clip	34
R35026	Product Catalogue R&Mfreenet, The LAN and SOHO Solution, German	181	R35400	Adapter Unit, Global	55
R35027	Product Catalogue R&Mfreenet, The LAN and SOHO Solution, English	181	R35401	Blind Cover, Global	54
R35033	Overview Brochure R&Mfreenet, The LAN and SOHO Solution, German	181	R35402	Connection Module Holder, Global/s	54
R35034	Overview Brochure R&Mfreenet, The LAN and SOHO Solution, English	181	R35403	Connection Module Holder, Global/u	54
R35044	Installation Cable, Cat. 5e, UTP 4P, PVC, 500 m drum	11	R35404	19" 3U Global Patch Panel, 48 x RJ45/s, Cat. 5e	51
R35045	Installation Cable, Cat. 5e, UTP 4P, LSOH, 500 m drum	11	R35405	19" 3U Global Patch Panel, 48 x RJ45/u, Cat. 5e	51
R35046	Siamese Cable, Cat. 5e, UTP 2 x 4P, PVC, 500 m drum	11	R35406	19" 3U Global Patch Panel, 60 x RJ45/s, Cat. 5e	52
R35047	Siamese Cable, Cat. 5e, UTP 2 x 4P, LSOH, 500 m drum	11	R35407	19" 3U Global Patch Panel, 60 x RJ45/u, Cat. 5e	52
R35048	Installation Cable Cat. 5e, FTP 4P, PVC, 500 m drum	12	R35408	19" 3U Global Patch Panel/s	53
R35049	Installation Cable Cat. 5e, FTP 4P, LSOH, 500 m drum	12	R35409	19" 3U Global Patch Panel/u	53
R35050	Siamese Cable, Cat. 5e, FTP 2 x 4P, PVC, 500 m drum	12	R922036-GN	Snap-On Frame, green	91
R35051	Siamese Cable, Cat. 5e, FTP 2 x 4P, LSOH, 500 m drum	12	R922036-GU	Snap-On Frame, grey	91
R35052	Installation Cable, Cat. 5e, S-FTP 4P, PVC, 500 m drum	13	R922036-RT	Snap-On Frame, red	91
R35053	Installation Cable, Cat. 5e, S-FTP 4P, LSFROH, 500 m drum	13	R922039	Label Strip Holder	91
R35054	Siamese Cable, Cat. 5e, S-FTP 2 x 4P, PVC, 500 m drum	13	R922066	Spacer	91
R35055	Siamese Cable, Cat. 5e, S-FTP 2 x 4P, LSFROH, 500 m drum	13	R922067	Labelling Sheet	60/90
R35056	Installation Cable Cat. 6, UTP 4P, PVC, 500 m drum	14	R924005-GN	Patch Cable, UTP 2P, A4-RJ45/u, 0.5 m	92
R35057	Installation Cable Cat. 6, UTP 4P, LSOH, 500 m drum	14	R924007-01	19" 1U Jumper Ring Panel, Chrome Steel	57
R35060	Installation Cable, Cat. 7, S-STP 4P, LSFROH, 500 m drum	16	R924007-02	19" 2U Jumper Ring Panel, Chrome Steel	57
R35061	Siamese Cable, Cat. 7, S-STP 2 x 4P, LSFROH, 500 m drum	16	R924010-GN	Patch Cable, UTP 2P, A4-RJ45/u, 1.0 m	92
R35073	Multipair Installation Cable, Cat. 3, UTP, LSOH, 25 pairs, 300 m drum	10	R924015-GN	Patch Cable, UTP 2P, A4-RJ45/u, 1.5 m	92
R35075	Multipair Installation Cable, Cat. 3, UTP, LSOH, 50 pairs, 300 m drum	10	R924020-GN	Patch Cable, UTP 2P, A4-RJ45/u, 2.0 m	92
R35076	Multipair Installation Cable, Cat. 3, UTP, LSOH, 100 pairs, 300 m drum	10	R924116	SRV Swivel Unit, 1 x 40 Poles	90
R35078	Multipair Installation Cable, Cat. 3, FTP, LSOH, 25 pairs, 300 m drum	10	R924117	SRV Swivel Unit, 2 x 40 Poles	90
R35080	Multipair Installation Cable, Cat. 3, FTP, LSOH, 50 pairs, 300 m drum	10	R925102	Cover Plate for Swivel Unit	55
R35081	Multipair Installation Cable, Cat. 3, FTP, LSOH, 100 pairs, 300 m drum	10	R925370	Connection Module, Cat. 5e, 1 x RJ45/s	30
R35103	RJ45/s to BNC/f Video/Audio Adaptor	168	R925371	Connection Module, Cat. 5e, 1 x RJ45/u	31
R35115	19" 1U Patch Panel, empty	82	R925602	Dust Cover for RJ45 Jack	34
R35116	Connection Module 10 x RJ45/u (4–5, 3–6)	82	R925628	DK Mounting Unit, 2 x 1 Port, white	111
			R925629	Labelling Sheet DK	126
			R925631	Blind Cover for DK Mounting Unit, white	111
			R925653	Blind Cover for DK Mounting Unit, grey	111
			R925661	Sample Case, Standard	180
			R925685-GN	Patch Cable, UTP 1P, A2-RJ45/u, 0.5 m	92
			R925686-GN	Patch Cable, UTP 1P, A2-RJ45/u, 1.0 m	92
			R925687-GN	Patch Cable, UTP 1P, A2-RJ45/u, 1.5 m	92
			R925688-GN	Patch Cable, UTP 1P, A2-RJ45/u, 2.0 m	92

Part No	Description	Page	Part No	Description	Page
R925689	DK Mounting Unit, 2 x 1 Port, grey	111	R925774	Duct Outlet, 80 x 86, 2 x 1 Port, beige	107
R925692	Telephone Cord UTP, RJ45/u to RJ11/u, 5 m	99	R925775	FM Outlet, 88 x 88, 2 x 1 Port, white	104
R925693	Telephone Cord UTP, RJ45/u to RJ11/u, 3 m	99	R925776	FM Outlet, 88 x 88, 2 x 1 Port, beige	104
R925694-GN	Patch Cable, UTP 3P, A6-RJ45/u, 0.5 m	92	R925777	FM Global Outlet, 88 x 88, 2 x 1 Port, white	105
R925695-GN	Patch Cable, UTP 3P, A6-RJ45/u, 1.0 m	92	R925778	FM Global Outlet, 88 x 88, 2 x 1 Port, beige	105
R925696-GN	Patch Cable, UTP 3P, A6-RJ45/u, 1.5 m	92	R925779	WM Outlet, 78 x 78, 2 x 1 Port, white	106
R925697-GN	Patch Cable, UTP 3P, A6-RJ45/u, 2.0 m	92	R925780	WM Outlet, 78 x 78, 2 x 1 Port, beige	106
R925702	Labelling Sheet for Outlets	127	R925781	Duct Outlet, Ø 62.5 mm, 2 x 1 Port, white	108
R925717	BS Faceplate, 1 Port, white	112	R925782	503 Outlet, 2 x 1 Port, white	109
R925718	BS Faceplate, 2 x 1 Port, white	112	R925783	503 Outlet, 2 x 1 Port, beige	109
R925719	Universal Blind Cover, white	127	R925795	Mounting Plate 45 x 45 mm, 2 x 1 Port, white	115
R925721	Splitter RJ45/u to 2 x RJ11/u	99	R925822	US Style Faceplate, 6 x 1 Port, white	119
R925722	Mounting Plate 45 x 45 mm, 1 Port, white	115	R925824	Mounting Box for US Style Faceplate, white	119
R925728	Mini Surface Box, 2 x 1 Port, white	116	R925842	Shuttered Fascia, 25 x 50 mm, 1 Port, white	114
R925757	US Style Faceplate, 1 Port, white	118	R925892	Compact Box, 6 x 1 Port, white	117
R925758	US Style Faceplate, 2 x 1 Port, white	118	R925893	Compact Box "Magnet" 6 x 1 Port, white	117
R925759	Labelling Sheet Mini Surface Mount Box	126	R925894	SRV Connection Block, 1 x 40 Poles	90
R925762	DM Outlet, 80 x 86, 1 Port, white	107	R925895	Wallplate Fascia, 50 x 50 mm	114
R925763	DM Outlet, 80 x 86, 1 Port, beige	107	R925896	Wallplate Fascia, 50 x 100 mm	114
R925764	FM Outlet, 88 x 88, 1 Port, white	104	R925897	Blind Cover Fascia, 25 x 50 mm	114
R925765	FM Outlet, 88 x 88, 1 Port, beige	104	R925898	Adapter Collar Fascia, 25 x 50 mm	114
R925766	FM Global Outlet, 88 x 88, 1 Port, white	105	R925899	Adapter Collar Fascia, 50 x 50 mm	114
R925767	FM Global Outlet, 88 x 88, 1 Port, beige	105	R925920	Demo Rack, Standard	180
R925768	WM Outlet, 78 x 78, 1 Port, white	106	R925933	Telephone Cord UTP, RJ11/u to RJ11/u, 5 m	99
R925769	WM Outlet, 78 x 78, 1 Port, beige	106	R925934	Telephone Cord UTP, RJ11/u to RJ11/u, 3 m	99
R925770	Duct Outlet, Ø 62.5 mm, 1 Port, white	108	R925943	Shuttered Fascia, 50 x 75 mm, white	114
R925771	503 Outlet, 1 Port, white	109	R925950	BS Faceplate, 4 x 1 Port, white	112
R925773	Duct Outlet, 80 x 86, 2 x 1 Port, white	107	R930114	Jumpering Bracket	59



Description	Part No	Page
<b>1</b>		
1/2 Blind Cover, Global	R302149	54
10" 3U Global Patch Panel/s, empty	R306023	176
10" 3U Global Patch Panel/u, empty	R306024	176
120 Perforated Labelling Strips	R303635	136
16 Port Patch Panel Labelling Sheet	R306039	60
19" 1U Contact Drawer II	R305374	72
19" 1U Jumper Plastic Ring Panel	R306179	57/72
19" 1U Jumper Ring Panel, Chrome Steel	R924007-01	57
19" 2U Jumper Plastic Ring Panel	R306180	57/72
19" 2U Jumper Ring Panel, Chrome Steel	R924007-02	57
19" 3U Adapter Housing	R30870	70
19" Mounting Kit	R305989	59
19" 1U 16 Port Patch Panel, empty/s	R305889	53
19" 1U 16 Port Patch Panel, empty/u	R305890	53
19" 1U 24 Port Patch Panel, empty	R305119	53
19" 1U Patch Cable Tray III	R305758	72
19" 1U Patch Panel 24 x RJ45/s, Cat. 5e	R305121	49
19" 1U Patch Panel, 16 x RJ45/s, Cat. 5e	R305885	47
19" 1U Patch Panel, 16 x RJ45/s, Cat. 6	R305887	47
19" 1U Patch Panel, 16 x RJ45/u, Cat. 5e	R305886	47
19" 1U Patch Panel, 16 x RJ45/u, Cat. 6	R305888	47
19" 1U Patch Panel, 24 x RJ45/s, Cat. 6	R305120	49
19" 1U Patch Panel, 24 x RJ45/u, Cat. 5e	R305118	49
19" 1U Patch Panel, 24 x RJ45/u, Cat. 6	R305117	49
19" 1U Patch Panel, empty	R35115	82
19" 1U Patch Panel, empty, for PBX, without wiring channel	R305123	84/85/86
19" 3U FO Global Patch Panel	R31023	70
19" 3U Global Patch Panel, 48 x RJ45/s, Cat. 5e	R35404	51
19" 3U Global Patch Panel, 48 x RJ45/s, Cat. 6	R302360	51
19" 3U Global Patch Panel, 48 x RJ45/u, Cat. 5e	R35405	51
19" 3U Global Patch Panel, 48 x RJ45/u, Cat. 6	R302361	51
19" 3U Global Patch Panel, 60 x RJ45/s, Cat. 5e	R35406	52
19" 3U Global Patch Panel, 60 x RJ45/s, Cat. 6	R302362	52
19" 3U Global Patch Panel, 60 x RJ45/u, Cat. 5e	R35407	52
19" 3U Global Patch Panel, 60 x RJ45/u, Cat. 6	R302363	52
19" 3U Global Patch Panel/s	R35408	53
19" 3U Global Patch Panel/u	R35409	53
19" 4U Patch Panel, empty	R304475	84
19" Fiberliner, equipped, 12 x type E-2000™, 50 µm	R306202	71
19" Fiberliner, equipped, 12 x type E-2000™, 62.5 µm	R303563	71
19" Fiberliner, equipped, 12 x type SC	R306918	71
19" Fiberliner, equipped, 12 x type SC	R30864	71
19" Fiberliner, equipped, 12 x type ST MM	R306961	71
19" Fiberliner, equipped, 6 x type E-2000™ Compact, 50 µm	R306214	71
19" Fiberliner, equipped, 6 x type E-2000™ Compact, 50 µm	R306959	71

Description	Part No	Page
19" Fiberliner, equipped, 6 x type E-2000™ Compact, 62.5 µm	R306215	71
19" Fiberliner, equipped, 6 x type E-2000™ Compact, 62.5 µm	R306960	71
19" Fiberliner, equipped, 6 x type MT-RJ	R303568	71
19" Fiberliner, equipped, 6 x type SC Duplex MM	R306957	71
19" Fiberliner, equipped, 6 x type SC-RJ MM	R306958	71
19" Fiberliner, equipped, 6 x type SC-RJ	R30867	71
19" Fiberliner, equipped, 6 x type ST	R30863	71
1U Sub-Rack	R30872	68

<b>2</b>		
24 Port Patch Panel Labelling Sheet	R305090	60

<b>5</b>		
50 x 50 Outlet, 2 x 1 Port, beige	R306008	110
50 x 50 Outlet, 2 x 1 Port, white	R306010	110
503 Outlet, 1 Port, white	R925771	109
503 Outlet, 2 x 1 Port, beige	R925783	109
503 Outlet, 2 x 1 Port, white	R925782	109
503 Outlet, 4 x 1 Port, white	R304275	109

<b>8</b>		
80 x 80 Outlet, 2 x 1 Port, beige	R306004	110
80 x 80 Outlet, 2 x 1 Port, white	R306006	110
8HP Adaptor Holder for 12 x E-2000™/SC/MT-RJ	R300541	75
8HP Adaptor Holder for 12 x ST/FC-PC	R300543	75
8HP Adaptor Holder for 6 x SC-RJ/E-2000™ Compact	R300542	75

<b>A</b>		
Adapter Collar Fascia, 25 x 50 mm	R925898	114
Adapter Collar Fascia, 50 x 50 mm	R925899	114
Adapter RJ45/s-RJ45/s ISDN-T	R25778	98
Adapter Unit, Global	R35400	55

<b>B</b>		
Baffle Guide, left	R30126	72
Baffle Guide, right	R30125	72
Blind Cover Fascia, 25 x 50 mm	R925897	114
Blind Cover for DK Mounting Unit, grey	R925653	111
Blind Cover for DK Mounting Unit, white	R925631	111
Blind Cover	R35117	87
Blind Cover, Global	R35401	54
Blind Plate 19" 1U GVS	R24031-01	58
Blind Plate 19" 2U GVS	R24031-02	58
Blind Plate 19" 3U GVS	R24031-03	58
Blind Plate 19" 4U GVS	R24031-04	58
BNC Crimp Socket	R23002	56
BS Faceplate, 1 Port, white	R925717	112
BS Faceplate, 2 x 1 Port, white	R925718	112
BS Faceplate, 4 x 1 Port, white	R925950	112

## Alphabetical Index

Description	Part No	Page
<b>C</b>		
Cable Guide for 19" Rack, depth 110 mm	R304439	73
Cable Guide for 19" Rack, depth 110 mm, 600 mm Velcro strips	R302003	73
Cable Guide II for 19" Rack, depth 75 mm	R30315	73
Cable Guide Set NW 10 mm	R30892	74
Cable Guide Set NW 17 mm	R30059-17	74
Cable Through Guide Panel 1U	R25055	58
Coax Blind Cover	R23021	56
Coax Socket Holder, 2 x 5	R300283	55
Colour Coding «A» for RJ45 Connectors, anthracite	R25432	155
Colour Coding «A» for RJ45 Outlets, anthracite	R25107	155
Colour Coding «B» for RJ45 Connectors, white	R25677	155
Colour Coding «B» for RJ45 Outlets, white	R25676	155
Colour Coding, anthracite	R302342	148
Colour Coding, blue	R302343	148
Colour Coding, brown	R302344	148
Colour Coding, green	R302348	148
Colour Coding, grey	R302347	148
Colour Coding, red	R302349	148
Colour Coding, violet	R302420	148
Colour Coding, yellow	R302345	148
Combi Cable Set DBT/RJ45	R302185	177
Compact Box «Magnet» 6 x 1 Port, white	R925893	117
Compact Box, 6 x 1 Port, white	R925892	117
Concentrator Module 8 x RJ45/u to 2 x RJ45/u	R35122	82
Connecting Cable for NT + 2ab, incl. U interface, unshielded, length 0.5 m	R300932	98
Connecting Cable for NT + 2ab, incl. U interface, unshielded, length 1.5 m	R300933	98
Connecting Cable for NT + 2ab, incl. U interface, unshielded, length 3.0 m	R300934	98
Connection Module 10 x RJ45/u (4–5, 3–6)	R35116	82
Connection Module 10 x RJ45/u (4–5, 7–8)	R301388	82
Connection Module 10 x RJ45/u ISDN/Bus	R302182	82
Connection Module 10 x RJ45/u ISDN/Bus	R302182	86
Connection Module 16 x RJ45/u, XFALC/XDLC/XFEM	R304668	85
Connection Module 19 x RJ45/u, Remote Office 9150	R304671	85
Connection Module 2 x RJ45/u, ISDN-Bus	R25434	94
Connection Module 48 x RJ45/u, XDLC	R304669	85
Connection Module 8 x RJ45/u for S or T interfaces	R305332	86
Connection Module 8 x RJ45/u, SILC / ISDN BRA	R304667	85
Connection Module 8 x RJ45/u, with Modu connection	R304742	84
Connection Module 8 x RJ45/u, with Modu connection	R304742	86
Connection Module 8 x RJ45/u, with two Modu connections	R304743	84
Connection Module 9 x RJ45/u, MDECT	R304670	85
Connection Module Holder, Global/s	R35402	54
Connection Module Holder, Global/u	R35403	54
Connection Module, 1 x RJ45/s, ISDN-Bus	R25372	94

Description	Part No	Page
Connection Module, 1 x RJ45/u, ISDN-Bus	R25373	94
Connection Module, 2 x RJ45/s, ISDN-Bus	R25431	94
Connection Module, 8 x RJ45/u, switch-selectable	R306103	84
Connection Module, Cat. 5e, 1 x RJ45/s	R925370	30
Connection Module, Cat. 5e, 1 x RJ45/s, Flap Jack	R305763	33
Connection Module, Cat. 5e, 1 x RJ45/s, Special	R305111	33
Connection Module, Cat. 5e, 1 x RJ45/u	R925371	31
Connection Module, Cat. 5e, 1 x RJ45/u, Special	R305112	33
Connection Module, Cat. 5e, 100 x RJ45/s	R304325	30
Connection Module, Cat. 5e, 100 x RJ45/u	R304326	31
Connection Module, Cat. 6, 1 x RJ45/s	R302372	30
Connection Module, Cat. 6, 1 x RJ45/s, Flap Jack	R305764	33
Connection Module, Cat. 6, 1 x RJ45/s, Special	R305113	33
Connection Module, Cat. 6, 1 x RJ45/u	R302373	31
Connection Module, Cat. 6, 1 x RJ45/u, Special	R305114	33
Connection Module, Cat. 6, 100 x RJ45/s	R304327	30
Connection Module, Cat. 6, 100 x RJ45/u	R304328	31
Cover Plate for Swivel Unit	R925102	55
Cover to 19" Fiberliner pre.	R30278	71
Cover to 1U Sub-Rack	R30873	68
Crossover Cable RJ45-RJ45 S-FTP	R302707	177
<b>D</b>		
Demo Rack, Standard	R925920	180
Distributor 1 x RJ45 to 4 x RJ11/u	R25524	101
Distributor 1xRJ45/u to 4xRJ45/u	R35121	101
DK Mounting Unit, 2 x 1 Port, grey	R925689	111
DK Mounting Unit, 2 x 1 Port, white	R925628	111
DM Outlet, 80 x 86, 1 Port, beige	R925763	107
DM Outlet, 80 x 86, 1 Port, white	R925762	107
DM Outlet, 80 x 86, 4 x 1 Port, white	R305151	107
Drop Cable, 2 fibers, 50/125 µm (OM2), 2000 m	R304070	20
Drop Cable, 2 fibers, 62.5/125 µm (OM1), 2000 m	R304071	20
Duct Outlet, 80 x 86, 2 x 1 Port, beige	R925774	107
Duct Outlet, 80 x 86, 2 x 1 Port, white	R925773	107
Duct Outlet, Ø 62.5 mm, 1 Port, white	R925770	108
Duct Outlet, Ø 62.5 mm, 2 x 1 Port, white	R925781	108
Duct Outlet, Ø 62.5 mm, 4 x 1 Port, white	R305012	108
Dummy Plugs E-2000™/SC/MT-RJ	R30004-20	76
Dummy Plugs SC Duplex	R30843	76
Dummy Plugs SC-RJ, E-2000™ Compact	R30842	76
Dummy Plugs ST/FC-PC	R30841	76
Duplex Cable, 2 fibers, 50/125 µm (OM2), 2000 m	R304068	20
Duplex Cable, 2 fibers, 62.5/125 µm (OM1), 2000 m	R304069	20
Dust Cover Flap, blue	R304315	115
Dust Cover Flap, green	R304316	115
Dust Cover Flap, red	R304317	115
Dust Cover Flap, yellow	R304318	115
Dust Cover for RJ45 Jack	R925602	34



Description	Part No	Page
<b>E</b>		
Easy Flex shielded, type 4	R35120	166
Easy Flex, shielded, type 1	R25938	166
Easy Flex, shielded, type 2	R25939	166
<b>F</b>		
Fan Out Kit	R300266	78
Fiberliner Labelling Sheet	R30871	69
Fixed Shelf 19" 3U GVS	R24069-03	58
Flap Jack Module Holder (Type 6C), black	R305702	113
Flap Jack Module Holder (Type 6C), white	R303155	113
Flap Jack Wall Plate, 86 x 86, 1 Port, white	R303152	113
Flap Jack Wall Plate, 86 x 86, 2 x 1 Port, white	R303154	113
Flex Duct	R302724	178
Flush-Mount Splash Outlet, for wet locations, 87 x 87, 1 Port	R307037	160
Flush-Mount Splash Outlet, for wet locations, 87 x 87, 1 Port	R307038	160
Flush-Mount Splash Outlet, for wet locations, 87 x 87, 2 x 1 Port	R307036	160
Flush-Mount Splash Outlet, for wet locations, 87 x 87, 2 x 1 Port	R307039	160
FM Global Outlet, 88 x 88, 1 Port, beige	R925767	105
FM Global Outlet, 88 x 88, 1 Port, white	R925766	105
FM Global Outlet, 88 x 88, 2 x 1 Port, beige	R925778	105
FM Global Outlet, 88 x 88, 2 x 1 Port, white	R925777	105
FM Global Outlet, 88 x 88, 4 x 1 Port, white	R305150	105
FM Outlet 12 x 1 Port, white	R302387	120
FM Outlet, 88 x 88, 1 Port, beige	R925765	104
FM Outlet, 88 x 88, 1 Port, white	R925764	104
FM Outlet, 88 x 88, 2 x 1 Port, beige	R925776	104
FM Outlet, 88 x 88, 2 x 1 Port, white	R925775	104
FM Outlet, 88 x 88, 4 x 1 Port, white	R305149	104
FM Test Outlet ISDN, 3 x RJ45/s, 88 x 88	R25762	97
FM Test Outlet ISDN, 3 x RJ45/u, 88 x 88	R25764	97
FO 19" 3U 8HP Fiberliner, equipped, splice version zirconia ceramic, 12 x type ST, 50 µm (OM2)	R300154	69
FO 19" 3U 8HP Fiberliner, equipped, splice version zirconia ceramic, 6 x type SC Duplex, 62.5 µm (OM1)	R300258	69
FO 19" 3U 8HP Fiberliner, equipped, splice version ironia ceramic, 6 x type SC Duplex, 50 µm (OM2)	R300259	69
FO 19" 1U Breakout Box, equipped, 12 x type E-2000™ Compact, black/orange (50 µm)	R306872	65
FO 19" 1U Breakout Box, equipped, 12 x type E-2000™ Compact, black/black (62.5 µm)	R306873	65
FO 19" 1U Breakout Box, equipped, 12 x type SC Duplex, beige (50/62.5 µm)	R306876	65
FO 19" 1U Breakout Box, equipped, 24 x type SC, beige (50/62.5 µm)	R306875	65
FO 19" 1U Breakout Box, equipped, 24 x type ST (50/62.5 µm)	R306874	65

Description	Part No	Page
FO 19" 1U Breakout Box, equipped, FO Cover for 19" 1U Splice Box/Breakout Box (50/62.5 µm)	R306775	65
FO 19" 1U Fibereasy Rack 24, 12 x type E-2000™ Compact, 50 µm (OM2)	R306196	67
FO 19" 1U Fibereasy Rack 24, 12 x type E-2000™ Compact, 62.5 µm (OM1)	R306197	67
FO 19" 1U Fibereasy Rack 24, 12 x type MT-RJ	R303580	67
FO 19" 1U Fibereasy Rack 24, 12 x type SC Duplex	R30692-12	67
FO 19" 1U Fibereasy Rack 24, 12 x type SC-RJ	R30693-12	67
FO 19" 1U Fibereasy Rack 24, 12 x type ST	R30691-12	67
FO 19" 1U Fibereasy Rack 24, 24 x type E-2000™, 50 µm (OM2)	R306194	67
FO 19" 1U Fibereasy Rack 24, 24 x type E-2000™, 62.5 µm (OM1)	R303581	67
FO 19" 1U Fibereasy Rack 24, 24 x type SC	R304360	67
FO 19" 1U Fibereasy Rack 24, 24 x type ST	R30691-24	67
FO 19" 1U Splice Box, equipped (Multimode Version), 12 x type E-2000™ Compact, 62.5 µm (OM1)	R306896	64
FO 19" 1U Splice Box, equipped (Multimode Version), 12 x type E-2000™ Compact, 50 µm (OM2)	R306897	64
FO 19" 1U Splice Box, equipped (Multimode Version), 12 x type SC Duplex, 62.5 µm (OM1)	R306893	64
FO 19" 1U Splice Box, equipped (Multimode Version), 12 x type SC Duplex, 50 µm (OM2)	R306894	64
FO 19" 1U Splice Box, equipped (Multimode Version), 24 x type SC, 50 µm (OM2)	R306891	64
FO 19" 1U Splice Box, equipped (Multimode Version), 24 x type SC, 62.5 µm (OM1)	R306895	64
FO 19" 1U Splice Box, equipped (Multimode Version), 24 x type ST, 62.5 µm (OM1)	R306895	64
FO 19" 1U Splice Box, equipped (Multimode Version), 24 x type ST, 50 µm (OM2)	R306899	64
FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version PhBr, 6 x type SC Duplex, 50 µm (OM2)	R306949	69
FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version PhBr, 6 x type SC Duplex, 62.5 µm (OM1)	R306950	69
FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version PhBr, 12 x type ST, 50 µm (OM2)	R306951	69
FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version PhBr, 12 x type ST, 62.5 µm (OM1)	R306952	69
FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version PhBr, 6 x type E-2000™ Compact, 50 µm (OM2)	R306953	69
FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version PhBr, 6 x type E-2000™ Compact, 62.5 µm (OM1)	R306954	69
FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version PhBr, 6 x type SC-RJ, 50 µm (OM2)	R306955	69
FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version PhBr, 6 x type SC-RJ, 62.5 µm (OM1)	R306956	69
FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version zirconia ceramic, 12 x type E-2000™, 50 µm (OM2)	R303570	69
FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version zirconia ceramic, 12 x type E-2000™, 62.5 µm (OM1)	R303571	69

## Alphabetical Index

Description	Part No	Page
FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version zirconia ceramic, 6 x type E-2000™ Compact, 50 µm (OM2)	R306212	69
FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version zirconia ceramic, 6 x type E-2000™ Compact, 62.5 µm (OM1)	R306213	69
FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version zirconia ceramic, 12 x type ST, 62.5 µm (OM1)	R30858	69
FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version zirconia ceramic, 12 x type SC, 62.5 µm (OM1)	R30860	69
FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version zirconia ceramic, 6 x type SC-RJ, 62.5 µm (OM1)	R30862	69
FO 1U UniRack, equipped, 12 x type E-2000™ Compact, 50 µm (OM2)	R306198	66
FO 1U UniRack, equipped, 12 x type E-2000™ Compact, 62.5 µm (OM1)	R30396-12-62.5	66
FO 1U UniRack, equipped, 12 x type E-2000™ LSH, 62.5 µm (OM1)	R300472	66
FO 1U UniRack, equipped, 12 x type E-2000™ LSH, 50 µm (OM2)	R300576	66
FO 1U UniRack, equipped, 12 x type SC Duplex, 50 µm (OM2)	R300264	66
FO 1U UniRack, equipped, 12 x type SC Duplex, 62.5 µm (OM1)	R300265	66
FO 1U UniRack, equipped, 12 x type SC, 62.5 µm (OM1)	R30316-12-62.5	66
FO 1U UniRack, equipped, 12 x type SC-RJ, 50 µm (OM2)	R30399-12-50	66
FO 1U UniRack, equipped, 12 x type SC-RJ, 62.5 µm (OM1)	R30399-12-62.5	66
FO 1U UniRack, equipped, 12 x type ST, 50 µm (OM2)	R300690	66
FO 1U UniRack, equipped, 12 x type ST, 62.5 µm (OM1)	R30317-12-62.5	66
FO 1U UniRack, equipped, 24 x type E-2000™ LSH, 50 µm (OM2)	R300579	66
FO 1U UniRack, equipped, 24 x type E-2000™ LSH, 62.5 µm (OM1)	R30398-24-62.5	66
FO 1U UniRack, equipped, 24 x type SC, 50 µm (OM2)	R301992	66
FO 1U UniRack, equipped, 24 x type SC, 62.5 µm (OM1)	R30316-24-62.5	66
FO 1U UniRack, equipped, 24 x type ST, 50 µm (OM2)	R300315	66
FO 1U UniRack, equipped, 24 x type ST, 62.5 µm (OM1)	R30317-24-62.5	66
FO 21" Adapter Set for 19" 1U Versions	R305148	74
FO Adaptor E-2000™ Compact, MM, 50/125 µm black/orange	R305814	39
FO Adaptor E-2000™ Compact, MM, 50/125 µm black/orange	R306878	39
FO Adaptor E-2000™ Compact, MM, 62.5/125 µm black/black	R305544	39
FO Adaptor E-2000™ Compact, MM, 62.5/125 µm black/black	R306882	39
FO Adaptor E-2000™ Compact, MM, One-Channel Module, 62.5/125 µm black/black	R305543	40
FO Adaptor E-2000™ Compact, MM, Snap-In, 50/125 µm black/orange	R305725	40
FO Adaptor E-2000™, MM, 50/125 µm black/orange	R305816	39
FO Adaptor E-2000™, MM, 62.5/125 µm, black/black	R301457	39
FO Adaptor MT-RJ, Duplex, black	R303558	40

Description	Part No	Page
FO Adaptor MT-RJ, MM, beige	R305400	39
FO Adaptor MT-RJ, SM/MM, blue	R305401	39
FO Adaptor SC, MM Duplex, beige	R303561	39
FO Adaptor SC, MM, beige	R306877	38
FO Adaptor SC, SM/MM, blue	R30803	38
FO Adaptor SC, SM/MM, Duplex, blue	R30805	39
FO Adaptor SC-RJ, SM/MM, One-Channel Module	R30574	40
FO Adaptor ST, MM	R303562	38
FO Adaptor ST, SM/MM	R30802	38
FO Adaptor, E-2000™ Compact, MM, One-Channel Module, 50/125 µm black/orange	R305815	40
FO Adaptor, E-2000™ Compact, MM, Snap-In, 62.5/125 µm black/ black	R305545	40
FO Adaptor, SC-RJ, MM, One-Channel Module	R307048	40
FO Adaptor, SC-RJ, MM, Snap-In	R307013	40
FO Converter 100Base TX/100Base-FX	R145218	178
FO Duct Outlet, E-2000™, pearl white	R303463	132
FO Duct Outlet, E-2000™, white	R303452	133
FO Duct Outlet, MT-RJ, pearl white	R303453	132
FO Duct Outlet, MT-RJ, white	R303454	133
FO Duct Outlet, SC Duplex, MM, pearl white	R303461	132
FO Duct Outlet, SC Duplex, MM, white	R303462	133
FO Duct Outlet, SC Duplex, SM, pearl white	R303459	132
FO Duct Outlet, SC Duplex, SM, white	R303460	133
FO Duct Outlet, SC-RJ, pearl white	R303455	132
FO Duct Outlet, SC-RJ, white	R303496	133
FO Duct Outlet, ST, MM, pearl white	R303457	132
FO Duct Outlet, ST, MM, white	R303458	133
FO Duct Outlet, ST, SM, pearl white	R303451	132
FO Duct Outlet, ST, SM, white	R303456	133
FO Floorbox Outlet, E-2000™, pearl white	R303477	134
FO Floorbox Outlet, MT-RJ, pearl white	R303466	134
FO Floorbox Outlet, SC Duplex, MM, pearl white	R303475	134
FO Floorbox Outlet, SC Duplex, SM, pearl white	R303473	134
FO Floorbox Outlet, SC-RJ, pearl white	R303468	134
FO Floorbox Outlet, ST, MM, pearl white	R303471	134
FO Floorbox Outlet, ST, SM, pearl white	R303464	134
FO Holder for Global Patch Panel	R31024	70
FO Hybrid Adaptor, SC Duplex/ST, SM/MM, blue	R30804	39
FO KR50 Cable Reservoir	R303488	135
FO KR55 Cable Reservoir	R303478	135
FO Outlet 50 x 50 mm, MT-RJ, pearl white	R303439	130
FO Outlet 50 x 50 mm, MT-RJ, white	R303440	131
FO Outlet 50 x 50 mm, SC, MM, pearl white	R303450	130
FO Outlet 50 x 50 mm, SC, MM, white	R303436	131
FO Outlet 50 x 50 mm, SC, SM, pearl white	R303446	130
FO Outlet 50 x 50 mm, SC, SM, white	R303447	131
FO Outlet 50 x 50 mm, ST, pearl white	R303435	130
FO Outlet 50 x 50 mm, ST, white	R303443	131



Description	Part No	Page
FO Outlet 80 x 86 mm, MT-RJ, CH, white	R303442	131
FO Outlet 80 x 86 mm, SC, CH, MM, white	R303438	131
FO Outlet 80 x 86 mm, SC, CH, SM, white	R303449	131
FO Outlet 80 x 86 mm, ST, CH, white	R303445	131
FO Outlet 88 x 88 mm, MT-RJ, CH, white	R303441	131
FO Outlet 88 x 88 mm, SC, CH, MM, white	R303437	131
FO Outlet 88 x 88 mm, SC, CH, SM, white	R303448	131
FO Outlet 88 x 88 mm, ST, CH, white	R303444	131
FO Outlet Module Holder 1 x SC Duplex	R30239	139
FO Outlet Module Holder 1 x SC Duplex/ST	R30813	139
FO Outlet Module Holder 2 x SC Duplex	R30242	139
FO Outlet Module Holder 2 x SC Duplex/ST	R30814	139
FO Outlet Module Holder 2 x ST	R30811	139
FO Outlet Module Holder 4 x ST	R30812	139
FO Rear Cable Entry with PG 16 Screwing	R302006	73
FO Snap-In Adaptor SC-RJ, SM/MM	R302537	40
FO Snap-In Adaptor SC-RJ, SM/MM	R302537	53
FO Splice Deposit to KR Cable Reservoir	R303489	135
FO Testkit MLP 4 – 2	R303946	41
FO Testkit T410	R303947	41
FO WM Outlet, SC Duplex, MM	R304971	133
Front Screen Maxi, blue, with Lock	R302216	173
Front Screen Maxi, green, with Lock	R302215	173
Front Screen Maxi, grey, with Lock	R302217	173
Front Screen Mini, blue	R302202	175
Front Screen Mini, green	R302200	175
Front Screen Mini, grey	R302203	175
Front Screen Mini, orange	R302204	175
Full Breakout Cable, 12 x 50/125 µm (OM2), Ø 13.6 mm, 2000 m	R304198	21
Full Breakout Cable, 12 x 62.5/125 µm (OM1), Ø 13.6 mm, 2000 m	R304203	21
Full Breakout Cable, 16 x 50/125 µm (OM2), Ø 15.8 mm, 2000 m	R304199	21
Full Breakout Cable, 16 x 62.5/125 µm (OM1), Ø 15.8 mm, 2000 m	R304204	21
Full Breakout Cable, 4 x 50/125 µm (OM2), Ø 9.0 mm, 2000 m	R304195	21
Full Breakout Cable, 4 x 62.5/125 µm (OM1), Ø 9.0 mm, 2000 m	R304200	21
Full Breakout Cable, 6 x 50/125 µm (OM2), Ø 10.6 mm, 2000 m	R304196	21
Full Breakout Cable, 6 x 62.5/125 µm (OM1), Ø 10.6 mm, 2000 m	R304201	21
Full Breakout Cable, 8 x 50/125 µm (OM2), Ø 12.0 mm, 2000 m	R304197	21
Full Breakout Cable, 8 x 62.5/125 µm (OM1), Ø 12.0 mm, 2000 m	R304202	21
<b>G</b>		
Global Patch Panel Labelling Sheet	R30871	60

Description	Part No	Page
<b>H</b>		
Hinged Dust Covers, anthracite	R305685	153
Hinged Dust Covers, blue	R305686	153
Hinged Dust Covers, brown	R305687	153
Hinged Dust Covers, green	R305690	153
Hinged Dust Covers, grey	R305689	153
Hinged Dust Covers, red	R305691	153
Hinged Dust Covers, violet	R305692	153
Hinged Dust Covers, white	R305693	153
Hinged Dust Covers, yellow	R305688	153
<b>I</b>		
Installation Cable Cat. 5e, FTP 4P, LSOH, 500 m drum	R35049	12
Installation Cable Cat. 5e, FTP 4P, PVC, 500 m drum	R35048	12
Installation Cable Cat. 6, UTP 4P, LSOH, 500 m drum	R35057	14
Installation Cable Cat. 6, UTP 4P, PVC, 500 m drum	R35056	14
Installation Cable, Cat. 5e, FTP 4P, LSOH, 305 m box	R300316	12
Installation Cable, Cat. 5e, FTP 4P, PVC, 305 m box	R300317	12
Installation Cable, Cat. 5e, FTP, LSFROH, 500 m drum	R302039	12
Installation Cable, Cat. 5e, S-FTP 4 x 4P, LSOH, 500 m drum	R302088	13
Installation Cable, Cat. 5e, S-FTP 4P, LSFROH, 500 m drum	R35053	13
Installation Cable, Cat. 5e, S-FTP 4P, LSOH, 500 m drum	R302089	13
Installation Cable, Cat. 5e, S-FTP 4P, PVC, 500 m drum	R35052	13
Installation Cable, Cat. 5e, UTP 4P, LSOH, 305 m box	R35292	11
Installation Cable, Cat. 5e, UTP 4P, LSOH, 500 m drum	R35045	11
Installation Cable, Cat. 5e, UTP 4P, PVC, 305 m box	R35291	11
Installation Cable, Cat. 5e, UTP 4P, PVC, 500 m drum	R35044	11
Installation Cable, Cat. 6e, S-STP 4P, LSOH, 500 m drum	R305649	15
Installation Cable, Cat. 7, S-STP 4P, LSFROH, 500 m drum	R35060	16
ISDN Mini-S-Bus analog/digital, anthracite	R25988	96
ISDN Mini-S-Bus analog/digital, white	R25987	96
ISDN Mini-S-Bus digital, shielded, anthracite	R25520	96
ISDN Mini-S-Bus digital, shielded, white	R25521	96
ISDN Mini-S-Bus digital, unshielded, anthracite	R25522	96
ISDN Mini-S-Bus digital, unshielded, white	R25523	96
ISDN-T Resistor set of 2	R25111	98
<b>J</b>		
Jack Guard	R307199	157
Jumpering Bracket	R930114	59
<b>K</b>		
Kleinhuis Mounting Support, 47 mm, horizontal	R303485	136
Kleinhuis Mounting Support, 50 mm, horizontal	R303486	136
Kleinhuis Mounting Support, 52 mm, horizontal	R303487	136
<b>L</b>		
Label Strip Holder	R922039	91
Labelling Sheet 45 x 45 Mounting Plate	R303786	126
Labelling Sheet DK	R925629	126

## Alphabetical Index

Description	Part No	Page
Labelling Sheet for Outlets	R925702	127
Labelling Sheet Mini Surface Mount Box	R925759	126
Labelling Sheet US Style, 6 Port	R300318	126
Labelling Sheet	R35119	87
Labelling Sheet	R922067	60/90
Labelling Strip to Splice Tray	R30334	77
Loose Tube Cable, corrugated steel tape, 12 x 50/125 µm (OM2), Ø 9.6 mm, 2000 m	R304210	24
Loose Tube Cable, corrugated steel tape, 12 x 62.5/125 µm (OM1), Ø 9.6 mm, 2000 m	R304213	24
Loose Tube Cable, corrugated steel tape, 24 x 50/125 µm (OM2), Ø 9.6 mm, 2000 m	R304211	24
Loose Tube Cable, corrugated steel tape, 24 x 62.5/125 µm (OM1), Ø 9.6 mm, 2000 m	R304214	24
Loose Tube Cable, corrugated steel tape, 48 x 50/125 µm (OM2), Ø 13.5 mm, 2000 m	R304212	24
Loose Tube Cable, corrugated steel tape, 48 x 62.5/125 µm (OM1), Ø 13.5 mm, 2000 m	R304215	24
Loose Tube Cable, rodent-resistant, 12 x 50/125 µm (OM2), Ø 6 mm, 2000 m	R304091	23
Loose Tube Cable, rodent-resistant, 12 x 50/125 µm (OM2), Ø 8.4 mm, 2000 m	R304150	24
Loose Tube Cable, rodent-resistant, 12 x 62.5/125 µm (OM1), Ø 6 mm, 2000 m	R304096	23
Loose Tube Cable, rodent-resistant, 12 x 62.5/125 µm (OM1), Ø 8.4 mm, 2000 m	R304153	24
Loose Tube Cable, rodent-resistant, 24 x 50/125 µm (OM2), Ø 10 mm, 2000 m	R304092	23
Loose Tube Cable, rodent-resistant, 24 x 50/125 µm (OM2), Ø 9.2 mm, 2000 m	R304151	24
Loose Tube Cable, rodent-resistant, 24 x 62.5/125 µm (OM1), Ø 10 mm, 2000 m	R304097	23
Loose Tube Cable, rodent-resistant, 24 x 62.5/125 µm (OM1), Ø 9.2 mm, 2000 m	R304154	24
Loose Tube Cable, rodent-resistant, 4 x 50/125 µm (OM2), Ø 6 mm, 2000 m	R304088	23
Loose Tube Cable, rodent-resistant, 4 x 62.5/125 µm (OM1), Ø 6 mm, 2000 m	R304093	23
Loose Tube Cable, rodent-resistant, 48 x 50/125 µm (OM2), Ø 11.8 mm, 2000 m	R304152	24
Loose Tube Cable, rodent-resistant, 48 x 62.5/125 µm (OM1), Ø 11.8 mm, 2000 m	R304155	24
Loose Tube Cable, rodent-resistant, 6 x 50/125 µm (OM2), Ø 6 mm, 2000 m	R304089	23
Loose Tube Cable, rodent-resistant, 6 x 62.5/125 µm (OM1), Ø 6 mm, 2000 m	R304094	23
Loose Tube Cable, rodent-resistant, 8 x 50/125 µm (OM2), Ø 6 mm, 2000 m	R304090	23
Loose Tube Cable, rodent-resistant, 8 x 62.5/125 µm (OM1), Ø 6 mm, 2000 m	R304095	23
<b>M</b>		
maxiCase 48 Tower Case (without 24 Port Panel)	R302213	173
maxiCase 48, 19" 24 Port Panel/s	R302276	173

Description	Part No	Page
maxiCase 48, 19" 24 Port Panel/u	R302275	173
Mini Breakout Cable, 12 x 50/125 µm (OM2), Ø 7.5 mm, 2000 m	R304076	22
Mini Breakout Cable, 12 x 62.5/125 µm (OM1), Ø 7.5 mm, 2000 mm	R304084	22
Mini Breakout Cable, 16 x 50/125 µm (OM2), Ø 9.0 mm, 2000 m	R304077	22
Mini Breakout Cable, 16 x 62.5/125 µm (OM1), Ø 9.0 mm, 2000 mm	R304085	22
Mini Breakout Cable, 2 x 50/125 µm (OM2), Ø 3.4 mm, 2000 m	R304189	22
Mini Breakout Cable, 2 x 50/125 µm (OM2), Ø 4.7 mm, 2000 m	R304072	22
Mini Breakout Cable, 2 x 62.5/125 µm (OM1), Ø 3.4 mm, 2000 m	R304190	22
Mini Breakout Cable, 2 x 62.5/125 µm (OM1), Ø 4.7 mm, 2000 m	R304080	22
Mini Breakout Cable, 24 x 50/125 µm (OM2), Ø 14.0 mm, 2000 m	R304078	22
Mini Breakout Cable, 24 x 62.5/125 µm (OM1), Ø 14.0 mm, 2000 m	R304086	22
Mini Breakout Cable, 4 x 50/125 µm (OM2), Ø 3.4 mm, 2000 m.	R304192	22
Mini Breakout Cable, 4 x 50/125 µm (OM2), Ø 4.7 mm, 2000 m	R304073	22
Mini Breakout Cable, 4 x 62.5/125 µm (OM1), Ø 3.4 mm, 2000 m	R304193	22
Mini Breakout Cable, 4 x 62.5/125 µm (OM1), Ø 4.7 mm, 2000 m	R304081	22
Mini Breakout Cable, 48 x 50/125 µm (OM2), Ø 17.0 mm, 2000 m	R304079	22
Mini Breakout Cable, 48 x 62.5/125 µm (OM1), Ø 17.0 mm, 2000 m	R304087	22
Mini Breakout Cable, 6 x 50/125 µm (OM2), Ø 6.0 mm, 2000 m	R304074	22
Mini Breakout Cable, 6 x 62.5/125 µm (OM1), Ø 6.0 mm, 2000 mm	R304082	22
Mini Breakout Cable, 8 x 50/125 µm (OM2), Ø 6.0 mm, 2000 m	R304075	22
Mini Breakout Cable, 8 x 62.5/125 µm (OM1), Ø 6.0 mm, 2000 mm	R304083	22
Mini Surface Box, 1 Port, creme white	R303901	116
Mini Surface Box, 1 Port, Magnet, creme white	R303902	116
Mini Surface Box, 2 x 1 Port, Magnet, white	R304777	116
Mini Surface Box, 2 x 1 Port, white	R925728	116
Mini Surface Box, RJ11, 4 Pole, 1 Port, creme white	R303903	116
miniCase 24 Tower Case complete	R302198	175
Module Fixing Strap	R30247	77
Mounting Box for US Style Faceplate, white	R925824	119
Mounting Plate 45 x 45 mm, 1 Port, dust cover, white	R304313	115
Mounting Plate 45 x 45 mm, 1 Port, white	R925722	115
Mounting Plate 45 x 45 mm, 2 x 1 Port, dust cover, white	R304314	115
Mounting Plate 45 x 45 mm, 2 x 1 Port, white	R925795	115

Description	Part No	Page
Mounting Plate for 3M Fibrok	R304873	78
Mounting Support	R35118	87
MT-RJ Field Terminated, 50/125 µm	R305184	36
MT-RJ Field Terminated, 62.5/125 µm	R305185	36
Multipair Installation Cable, Cat. 3, FTP, LSOH, 100 pairs, 300 m drum	R35081	10
Multipair Installation Cable, Cat. 3, FTP, LSOH, 25 pairs, 300 m drum	R35078	10
Multipair Installation Cable, Cat. 3, FTP, LSOH, 50 pairs, 300 m drum	R35080	10
Multipair Installation Cable, Cat. 3, UTP, LSOH, 100 pairs, 300 m drum	R35076	10
Multipair Installation Cable, Cat. 3, UTP, LSOH, 25 pairs, 300 m drum	R35073	10
Multipair Installation Cable, Cat. 3, UTP, LSOH, 50 pairs, 300 m drum	R35075	10

## O

Overview Brochure R&Mfreenet, The LAN and SOHO Solution, English	R35034	181
Overview Brochure R&Mfreenet, The LAN and SOHO Solution, German	R35033	181

## P

Part Front Plate 19" 3U/8HP	R30055-3-8	75
Part Front Plate FiberCon 48 8HP	R304907	63
Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 5e, 0.5 m	R305039	143
Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 5e, 1.0 m	R305040	143
Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 5e, 1.5 m	R305041	143
Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 5e, 10.0 m	R305046	143
Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 5e, 12.5 m	R305047	143
Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 5e, 15.0 m	R305048	143
Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 5e, 2.0 m	R305042	143
Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 5e, 20.0 m	R305049	143
Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 5e, 3.0 m	R305043	143
Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 5e, 5.0 m	R305044	143
Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 5e, 7.5 m	R305045	143
Patch Cable, shielded, S-FTP 4P, PVC, Cat. 5e, 0.5 m	R305028	143
Patch Cable, shielded, S-FTP 4P, PVC, Cat. 5e, 1.0 m	R305029	143
Patch Cable, shielded, S-FTP 4P, PVC, Cat. 5e, 1.5 m	R305030	143
Patch Cable, shielded, S-FTP 4P, PVC, Cat. 5e, 10.0 m	R305035	143
Patch Cable, shielded, S-FTP 4P, PVC, Cat. 5e, 12.5 m	R305036	143
Patch Cable, shielded, S-FTP 4P, PVC, Cat. 5e, 15.0 m	R305037	143
Patch Cable, shielded, S-FTP 4P, PVC, Cat. 5e, 2.0 m	R305031	143
Patch Cable, shielded, S-FTP 4P, PVC, Cat. 5e, 20.0 m	R305038	143
Patch Cable, shielded, S-FTP 4P, PVC, Cat. 5e, 3.0 m	R305032	143
Patch Cable, shielded, S-FTP 4P, PVC, Cat. 5e, 5.0 m	R305033	143
Patch Cable, shielded, S-FTP 4P, PVC, Cat. 5e, 7.5 m	R305034	143
Patch Cable, shielded, S-STP 4P, LSFROH, Cat. 6, 0.5 m	R302331	145
Patch Cable, shielded, S-STP 4P, LSFROH, Cat. 6, 1.0 m	R302332	145
Patch Cable, shielded, S-STP 4P, LSFROH, Cat. 6, 1.5 m	R302333	145

Description	Part No	Page
Patch Cable, shielded, S-STP 4P, LSFROH, Cat. 6, 10.0 m	R302338	145
Patch Cable, shielded, S-STP 4P, LSFROH, Cat. 6, 12.5 m	R302339	145
Patch Cable, shielded, S-STP 4P, LSFROH, Cat. 6, 15.0 m	R302340	145
Patch Cable, shielded, S-STP 4P, LSFROH, Cat. 6, 2.0 m	R302334	145
Patch Cable, shielded, S-STP 4P, LSFROH, Cat. 6, 20.0 m	R302418	145
Patch Cable, shielded, S-STP 4P, LSFROH, Cat. 6, 3.0 m	R302335	145
Patch Cable, shielded, S-STP 4P, LSFROH, Cat. 6, 5.0 m	R302336	145
Patch Cable, shielded, S-STP 4P, LSFROH, Cat. 6, 7.5 m	R302337	145
Patch Cable, shielded, S-STP 4P, PVC, Cat. 6, 0.5 m	R302320	145
Patch Cable, shielded, S-STP 4P, PVC, Cat. 6, 1.0 m	R302321	145
Patch Cable, shielded, S-STP 4P, PVC, Cat. 6, 1.5 m	R302322	145
Patch Cable, shielded, S-STP 4P, PVC, Cat. 6, 10.0 m	R302327	145
Patch Cable, shielded, S-STP 4P, PVC, Cat. 6, 12.5 m	R302328	145
Patch Cable, shielded, S-STP 4P, PVC, Cat. 6, 15.0 m	R302329	145
Patch Cable, shielded, S-STP 4P, PVC, Cat. 6, 2.0 m	R302323	145
Patch Cable, shielded, S-STP 4P, PVC, Cat. 6, 20.0 m	R302330	145
Patch Cable, shielded, S-STP 4P, PVC, Cat. 6, 3.0 m	R302324	145
Patch Cable, shielded, S-STP 4P, PVC, Cat. 6, 5.0 m	R302325	145
Patch Cable, shielded, S-STP 4P, PVC, Cat. 6, 7.5 m	R302326	145
Patch Cable, shielded/unshielded, S-FTP 4P, LSFROH, Cat. 5e, 0.5 m	R305061	144
Patch Cable, shielded/unshielded, S-FTP 4P, LSFROH, Cat. 5e, 1.0 m	R305062	144
Patch Cable, shielded/unshielded, S-FTP 4P, LSFROH, Cat. 5e, 1.5 m	R305063	144
Patch Cable, shielded/unshielded, S-FTP 4P, LSFROH, Cat. 5e, 10.0 m	R305068	144
Patch Cable, shielded/unshielded, S-FTP 4P, LSFROH, Cat. 5e, 12.5 m	R305069	144
Patch Cable, shielded/unshielded, S-FTP 4P, LSFROH, Cat. 5e, 15.0 m	R305070	144
Patch Cable, shielded/unshielded, S-FTP 4P, LSFROH, Cat. 5e, 2.0 m	R305064	144
Patch Cable, shielded/unshielded, S-FTP 4P, LSFROH, Cat. 5e, 20.0 m	R305071	144
Patch Cable, shielded/unshielded, S-FTP 4P, LSFROH, Cat. 5e, 3.0 m	R305065	144
Patch Cable, shielded/unshielded, S-FTP 4P, LSFROH, Cat. 5e, 5.0 m	R305066	144
Patch Cable, shielded/unshielded, S-FTP 4P, LSFROH, Cat. 5e, 7.5 m	R305067	144
Patch Cable, shielded/unshielded, S-FTP 4P, PVC, Cat. 5e, 0.5 m	R305050	144
Patch Cable, shielded/unshielded, S-FTP 4P, PVC, Cat. 5e, 1.0 m	R305051	144
Patch Cable, shielded/unshielded, S-FTP 4P, PVC, Cat. 5e, 1.5 m	R305052	144
Patch Cable, shielded/unshielded, S-FTP 4P, PVC, Cat. 5e, 10.0 m	R305057	144
Patch Cable, shielded/unshielded, S-FTP 4P, PVC, Cat. 5e, 12.5 m	R305058	144

## Alphabetical Index

Description	Part No	Page
Patch Cable, shielded/unshielded, S-FTP 4P, PVC, Cat. 5e, 15.0 m	R305059	144
Patch Cable, shielded/unshielded, S-FTP 4P, PVC, Cat. 5e, 2.0 m	R305053	144
Patch Cable, shielded/unshielded, S-FTP 4P, PVC, Cat. 5e, 20.0 m	R305060	144
Patch Cable, shielded/unshielded, S-FTP 4P, PVC, Cat. 5e, 3.0 m	R305054	144
Patch Cable, shielded/unshielded, S-FTP 4P, PVC, Cat. 5e, 5.0 m	R305055	144
Patch Cable, shielded/unshielded, S-FTP 4P, PVC, Cat. 5e, 7.5 m	R305056	144
Patch Cable, unshielded, UTP 4P, LSOH, Cat. 6, 0.5 m	R302309	145
Patch Cable, unshielded, UTP 4P, LSOH, Cat. 6, 1.0 m	R302310	145
Patch Cable, unshielded, UTP 4P, LSOH, Cat. 6, 1.5 m	R302311	145
Patch Cable, unshielded, UTP 4P, LSOH, Cat. 6, 10.0 m	R302316	145
Patch Cable, unshielded, UTP 4P, LSOH, Cat. 6, 12.5 m	R302317	145
Patch Cable, unshielded, UTP 4P, LSOH, Cat. 6, 15.0 m	R302318	145
Patch Cable, unshielded, UTP 4P, LSOH, Cat. 6, 2.0 m	R302312	145
Patch Cable, unshielded, UTP 4P, LSOH, Cat. 6, 20.0 m	R302319	145
Patch Cable, unshielded, UTP 4P, LSOH, Cat. 6, 3.0 m	R302313	145
Patch Cable, unshielded, UTP 4P, LSOH, Cat. 6, 5.0 m	R302314	145
Patch Cable, unshielded, UTP 4P, LSOH, Cat. 6, 7.5 m	R302315	145
Patch Cable, unshielded, UTP 4P, PVC, Cat. 5e, 0.5 m	R305014	143
Patch Cable, unshielded, UTP 4P, PVC, Cat. 5e, 1.0 m	R305015	143
Patch Cable, unshielded, UTP 4P, PVC, Cat. 5e, 1.5 m	R305019	143
Patch Cable, unshielded, UTP 4P, PVC, Cat. 5e, 10.0 m	R305024	143
Patch Cable, unshielded, UTP 4P, PVC, Cat. 5e, 12.5 m	R305025	143
Patch Cable, unshielded, UTP 4P, PVC, Cat. 5e, 15.0 m	R305026	143
Patch Cable, unshielded, UTP 4P, PVC, Cat. 5e, 2.0 m	R305020	143
Patch Cable, unshielded, UTP 4P, PVC, Cat. 5e, 20.0 m	R305027	143
Patch Cable, unshielded, UTP 4P, PVC, Cat. 5e, 3.0 m	R305021	143
Patch Cable, unshielded, UTP 4P, PVC, Cat. 5e, 5.0 m	R305022	143
Patch Cable, unshielded, UTP 4P, PVC, Cat. 5e, 7.5 m	R305023	143
Patch Cable, unshielded, UTP 4P, PVC, Cat. 6, 0.5 m	R302298	145
Patch Cable, unshielded, UTP 4P, PVC, Cat. 6, 1.0 m	R302299	145
Patch Cable, unshielded, UTP 4P, PVC, Cat. 6, 1.5 m	R302300	145
Patch Cable, unshielded, UTP 4P, PVC, Cat. 6, 10.0 m	R302305	145
Patch Cable, unshielded, UTP 4P, PVC, Cat. 6, 12.5 m	R302306	145
Patch Cable, unshielded, UTP 4P, PVC, Cat. 6, 15.0 m	R302307	145
Patch Cable, unshielded, UTP 4P, PVC, Cat. 6, 2.0 m	R302301	145
Patch Cable, unshielded, UTP 4P, PVC, Cat. 6, 20.0 m	R302308	145
Patch Cable, unshielded, UTP 4P, PVC, Cat. 6, 3.0 m	R302302	145
Patch Cable, unshielded, UTP 4P, PVC, Cat. 6, 5.0 m	R302303	145
Patch Cable, unshielded, UTP 4P, PVC, Cat. 6, 7.5 m	R302304	145
Patch Cable, UTP 1P, A2-RJ45/u, 0.5 m	R925685-GN	92
Patch Cable, UTP 1P, A2-RJ45/u, 1.0 m	R925686-GN	92
Patch Cable, UTP 1P, A2-RJ45/u, 1.5 m	R925687-GN	92
Patch Cable, UTP 1P, A2-RJ45/u, 2.0 m	R925688-GN	92
Patch Cable, UTP 2P, A4-RJ45/u, 0.5 m	R924005-GN	92

Description	Part No	Page
Patch Cable, UTP 2P, A4-RJ45/u, 1.0 m	R924010-GN	92
Patch Cable, UTP 2P, A4-RJ45/u, 1.5 m	R924015-GN	92
Patch Cable, UTP 2P, A4-RJ45/u, 2.0 m	R924020-GN	92
Patch Cable, UTP 3P, A6-RJ45/u, 0.5 m	R925694-GN	92
Patch Cable, UTP 3P, A6-RJ45/u, 1.0 m	R925695-GN	92
Patch Cable, UTP 3P, A6-RJ45/u, 1.5 m	R925696-GN	92
Patch Cable, UTP 3P, A6-RJ45/u, 2.0 m	R925697-GN	92
Patching Ring, left and right, for 19" Rack, strain relief elastics, depth 75 mm	R304440	73
Patching Ring, left and right, for 19" Rack, Velcro fastening 200 mm, depth 35 mm	R302004	73
Patching Ring, left and right, for 19" Rack, Velcro fastening 400 mm, depth 75 mm	R306181	57/73
Plug Guard Key	R304828	157
Plug Guard, green	R304825	157
Plug Guard, red	R304826	157
Plug Guard, white	R304827	157
Plug Holder, large	R22040	91
Position Protection	R35126	91
Product Catalogue Fiber Optic Solutions, English	R305470	181
Product Catalogue Fiber Optic Solutions, German	R305469	181
Product Catalogue R&Mfreenet, The LAN and SOHO Solution, English	R35027	181
Product Catalogue R&Mfreenet, The LAN and SOHO Solution, German	R35026	181
Product Catalogue Small Office, Small Company, English	R303217	181
Product Catalogue Small Office, Small Company, German	R145330	181
Protective Conductor Terminal, 6 mm <sup>2</sup>	R302150	59

## R

R&M FiberCon 48, empty	R300974	63
Radius Guard 2 x 15 mm for Patch Cable Tray II	R302007	74
Rear Cable Guide II to 19" 1U and 2U UniRack	R302058	73
RJ45/s to BNC/f Video/Audio Adaptor	R35103	168
RJ45/s to F-type CATV Balun, 550 MHz, 1–2	R302091	167

## S

Safe Clip	R304807	157
Sample Case, Standard	R925661	180
SC Field Terminated, 50/125 µm	R305179	36
SC Field Terminated, 62.5/125 µm	R305180	36
SC Field Terminated, 9/125 µm	R305178	36
Screw Clip	R35293	34
SC-RJ Connector Housing	R30578	38
Shuttered Fascia, 25 x 50 mm, 1 Port, black	R302031	114
Shuttered Fascia, 25 x 50 mm, 1 Port, white	R925842	114
Shuttered Fascia, 50 x 75 mm, white	R925943	114
Siamese Cable, Cat. 5e, FTP 2 x 4P, LSOH, 500 m drum	R35051	12
Siamese Cable, Cat. 5e, FTP 2 x 4P, PVC, 500 m drum	R35050	12
Siamese Cable, Cat. 5e, S-FTP 2 x 4P, LSFROH, 500 m drum	R35055	13



Description	Part No	Page
Siamese Cable, Cat. 5e, S-FTP 2 x 4P, PVC, 500 m drum	R35054	13
Siamese Cable, Cat. 5e, UTP 2 x 4P, LSOH, 500 m drum	R35047	11
Siamese Cable, Cat. 5e, UTP 2 x 4P, PVC, 500 m drum	R35046	11
Siamese Cable, Cat. 7, S-STP 2 x 4P, LSFRH, 500 m drum	R35061	16
Simplex Cable, 1 fiber, 50/125 µm (OM2), 2000 m	R304066	20
Simplex Cable, 1 fiber, 62.5/125 µm (OM1), 2000 m	R304067	20
Snap-In Coding Clip, anthracite	R302151	49
Snap-In Coding Clip, blue	R302152	49
Snap-In Coding Clip, brown	R302153	49
Snap-In Coding Clip, green	R302154	49
Snap-In Coding Clip, red	R302155	49
Snap-In Coding Clip, violet	R302156	49
Snap-In Coding Clip, white	R302157	49
Snap-In Coding Clip, yellow	R302158	49
Snap-In Connection Module, Cat. 5e, 1 x RJ45/s	R302780	32
Snap-In Connection Module, Cat. 5e, 1 x RJ45/u	R302518	32
Snap-In Connection Module, Cat. 6, 1 x RJ45/s	R304373	32
Snap-In Connection Module, Cat. 6, 1 x RJ45/u	R304374	32
Snap-On DK Mounting Unit, 2 x 1 Port, grey	R300695	111
Snap-On DK Mounting Unit, 2 x 1 Port, white	R300412	111
Snap-On Frame, green	R922036-GN	91
Snap-On Frame, grey	R922036-GU	91
Snap-On Frame, red	R922036-RT	91
Spacer	R922066	91
Special AMP Modu II Connecting Cable, length 2 m	R304950	84
Special AMP Modu II Connecting Cable, length 4 m	R306105	84
Special AMP Modu II Connecting Cable, length 6 m	R306104	84
Special Line Cord for NT + 2ab, unshielded	R35013-150	98
Splash Cap, blue	R306058	161
Splash Cap, green	R306061	161
Splash Cap, red	R306062	161
Splash Cap, white	R306063	161
Splash Cap, yellow	R306060	161
Splash Mounting Tool (3-prong sleeve expander)	R306057	161
Splash Sleeve	R306064	161
Splice Connector 3M Fibrlok	R30089	78
Splice Holder 3M	R30042	78
Splice Holder ANT	R30255	77
Splice Holder Fujikura	R30039-06	77
Splice Protection ANT	R30086	77
Splice Protection Fujikura FP-3M, Dimensions: diameter 3 x 35 mm	R30087-35	77
Splice Protection Fujikura FP-3M, Dimensions: diameter 3 x 65 mm	R30087	77
Splice Tray, Additional Set	R30394	75
Splice Tray, Basic Set	R30393	75
Splitter RJ45/u to 2 x RJ11/u	R925721	99
SRV Connection Block, 1 x 40 Poles	R925894	90
SRV Swivel Unit, 1 x 40 Poles	R924116	90

Description	Part No	Page
SRV Swivel Unit, 2 x 40 Poles	R924117	90
ST Field Terminated, 50/125 µm	R305182	36
ST Field Terminated, 62.5/125 µm	R305183	36
ST Field Terminated, 9/125 µm	R305181	36
Strain Relief 0.9 mm	R30203	76
Strain Relief 2.1 mm	R30204	76
Strain Relief Tape, 500 m	R301569	76

## T

Telephone Cord UTP, RJ11/u to RJ11/u, 3 m	R925934	99
Telephone Cord UTP, RJ11/u to RJ11/u, 5 m	R925933	99
Telephone Cord UTP, RJ45/u to RJ11/u, 3 m	R925693	99
Telephone Cord UTP, RJ45/u to RJ11/u, 5 m	R925692	99
Tool Kit I Standard, Tool Kit ST, SC, Field Terminated	R305186	37
Tool Kit II CTS, Tool Kit ST, SC and MT-RJ Field Terminated	R306000	37
Top Hat Rail Mounting Support, 47 mm, horizontal	R303481	136
Top Hat Rail Mounting Support, 50 mm, horizontal	R303482	136
Top Hat Rail Mounting Support, 52 mm, horizontal	R303483	136
Top Hat Rail Mounting Support, 55 mm, horizontal	R303484	136
T-Slot Mounting Support, 50 mm, horizontal	R303494	136
T-Slot Mounting Support, 50 mm, vertical	R303479	136
T-Slot Mounting Support, 55 mm, horizontal	R303495	136
T-Slot Mounting Support, 55 mm, vertical	R303480	136

## U

U Element	R302214	177
Universal Blind Cover, light grey	R305766	59
Universal Blind Cover, white	R925719	127
US Style Faceplate, 1 Port, white	R925757	118
US Style Faceplate, 2 x 1 Port, white	R925758	118
US Style Faceplate, 6 x 1 Port, white	R925822	119

## W

Wall Plate 80 x 80 to FO Outlet, pearl white	R303490	135
Wall Plate 80 x 80 to FO Outlet, white	R303491	135
Wall Plate 80 x 86 to FO Outlet, white	R303492	135
Wall Plate 88 x 88 to FO Outlet, white	R303493	135
Wallplate Fascia, 50 x 100 mm	R925896	114
Wallplate Fascia, 50 x 50 mm	R925895	114
Warning Sign Set	R30021	78
WM Outlet 12 x 1 Port, white	R302388	120
WM Outlet, 78 x78, 1 Port, beige	R925769	106
WM Outlet, 78 x78, 1 Port, white	R35127	106
WM Outlet, 78 x78, 1 Port, white	R925768	106
WM Outlet, 78 x78, 2 x 1 Port, beige	R925780	106
WM Outlet, 78 x78, 2 x 1 Port, white	R35128	106
WM Outlet, 78 x78, 2 x 1 Port, white	R925779	106
WM Test Outlet ISDN, 3 x RJ45/s, 78 x 78	R25760	97
WM Test Outlet ISDN, 3 x RJ45/u, 78 x 78	R25765	97



## The R&M partner near you

### Austria

Reichle & De-Massari Austria GmbH  
Seybelgasse 6-8  
AUT-1230 Vienna  
Telephone +43 1 865 32 00  
Telefax +43 1 865 32 00 120  
E-Mail office@rdm.at

### Belgium

Reichle & De-Massari Benelux  
Bukenberg 19 / 1  
BEL-2491 Balen-Olmen  
Telephone +32 (0) 14 304642  
Telefax +32 (0) 14 304642

### France

Reichle & De-Massari  
58, Rue Pottier  
FRA-78150 Le Chesnay  
Telephone +33 (0) 139 23 96 65  
Telefax +33 (0) 139 43 05 87

### Germany

Reichle & De-Massari GmbH  
Weismüllerstrasse 31 (GiP)  
DEU-60314 Frankfurt  
Telephone +49 69 420 008 0  
Telefax +49 69 408 046 02  
E-Mail info@r-d-m.de

### Hong Kong

Reichle & De-Massari Far East (Pte) Ltd.  
Unit 11, 4/F Block A, Mai Hing Industrial Bldg.  
16-18 Hing Yip Street, Kwun Tong  
HKG-Kowloon, Hong Kong  
Telephone +852 2401 3228  
Telefax +852 2401 3363

### Hungary

Reichle & De-Massari Kft.  
Petneházy u. 34-36  
HUN-1139 Budapest  
Telephone +36 1 412 2690  
Telefax +36 1 412 2699  
E-Mail info@rdm.hu

### India

TVS R&M Limited  
Madurai-Melur Road, Vellaripatti  
IND-Madurai 625 122  
Telephone +91 452 420215/420216  
Telefax +91 452 420381/341587  
E-Mail tvs@md2.vsnl.net.in

### Italy

Reichle & De-Massari Italia S.r.l.  
Via Saronnino 103  
ITA-21040 Origgio (VA)  
Telephone +39 02 96 95 2 111  
Telefax +39 02 96 95 2 110  
E-Mail sales@rdmit.it

### Japan

Reichle & De-Massari Far East (Pte) Ltd.  
Yokohama Aioi-chou Building  
Aioi-chou 6-104  
JPN-Naka-ku, Yokohama  
Telephone +81 45 640 1724  
Telefax +81 45 640 1728

### Poland

Reichle & De-Massari Polska Sp. z o.o.  
Ul. Farbiarska 49  
POL-02-862 Warsaw  
Telephone +48 22 644 47 37  
Telefax +48 22 643 25 54  
E-Mail info@rdm.com.pl

### Singapore

Reichle & De-Massari Far East (Pte) Ltd.  
50, Bukit Batok Street 23  
#02-18 Midview Building  
SGP-659578 Singapore  
Telephone +65 6896 6629  
Telefax +65 6896 6625  
E-Mail info@rdm.com.sg

### Spain

Reichle & De-Massari Ibérica  
C/ Plantio, 29 - 1  
ESP-28224 Pozuelo, Madrid  
Telephone +34 91 709 0012  
Telefax +34 91 709 0024

### Sweden

Reichle & De-Massari  
Oxenstiernasväg 9  
SWE-13440 Gustavsberg/Sweden  
Telephone +46 8 570 344 12  
Telefax +46 8 570 101 54

### Ukraine

Reichle & De-Massari Ukraine Ltd.  
38, Drygby Narodov Ave.  
UKR-01014 Kiev  
Telephone +380 44 2011 919  
Telefax +380 44 2956 969  
E-Mail info\_rdm@rdmua.com.ua

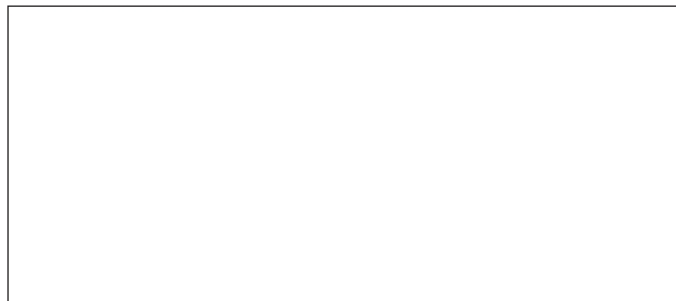
### United Arab Emirates

Reichle & De-Massari MEA  
P.O. Box 54281  
2E-205 Dubai Airport Free Zone  
ARE-Dubai  
Telephone +971 4299 6428  
Telefax +971 4299 6429  
E-Mail rdm@emirates.net.ae

### United Kingdom

Reichle & De-Massari (UK) Ltd.  
PO Box 124  
GBR-Kimpton Hertfordshire SG4 8WJ  
Telephone +44 1438 8324 83  
Telefax +44 1438 8334 83

Distributed by:



## Headquarters

### Switzerland

Reichle & De-Massari AG  
Binzstrasse 31  
CHE-8622 Wetzikon  
Telephone HQ +41 (0)1 933 81 11  
Telefax HQ +41 (0)1 930 49 41

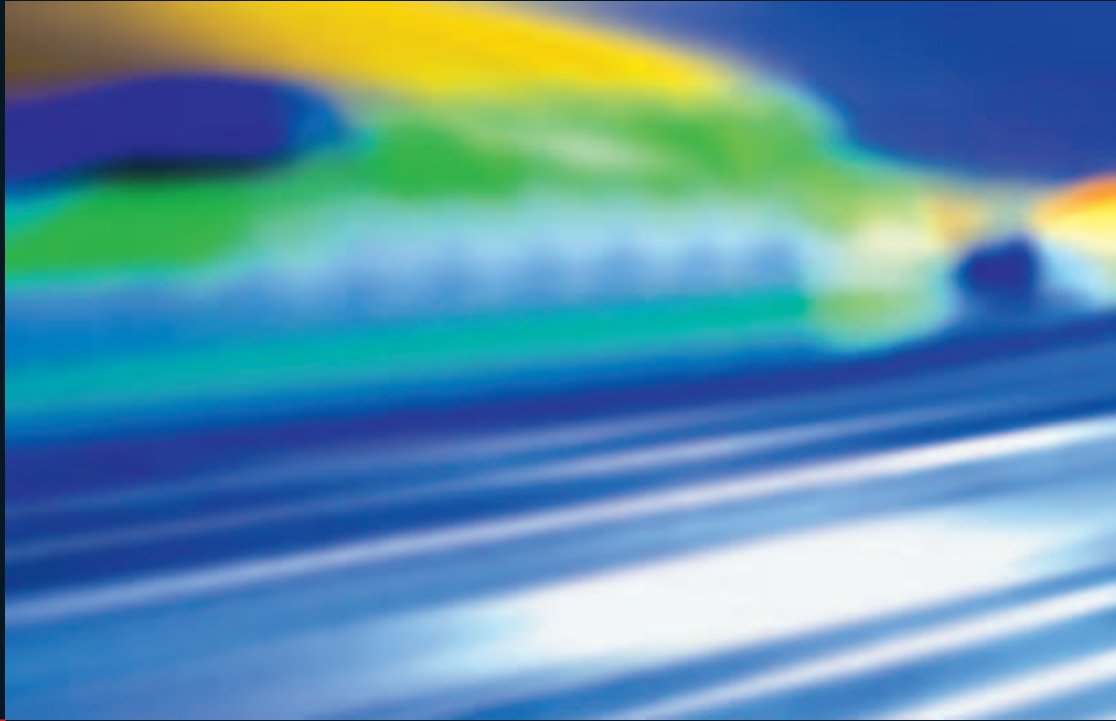
### Sales Switzerland

Aawise 13  
Telephone +41 (0)1 931 97 77  
Telefax +41 (0)1 931 93 29  
E-Mail verkauf.ch@rdm.ch

[www.rdm.com](http://www.rdm.com)



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Reichle & De-Massari AG  
Binzstrasse 31  
CHE-8622 Wetzikon  
Telephone +41 (1) 933 81 11  
Telefax +41 (1) 930 49 41  
**[www.rdm.com](http://www.rdm.com)**